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I.—THE ORIGIN AND MEANING OF GEOMETRICAL AXIOMS.

My object in this article* is to discuss the philosophical bearing of recent inquiries concerning geometrical axioms and the possibility of working out analytically other systems of geometry with other axioms than Euclid's. The original works on the subject, addressed to experts only, are particularly abstruse, but I will try to make it plain even to those who are not mathematicians. It is of course no part of my plan to prove the new doctrines correct as mathematical conclusions. Such proof must be sought in the original works themselves.

Among the first elementary propositions of geometry, from which the student is led on by continuous chains of reasoning to the laws of more and more complex figures, are some which are held not to admit of proof, though sure to be granted by every one who understands their meaning. These are the so-called Axioms; for example, the proposition that if the shortest line drawn between two points is called straight there can be only one such straight line. Again, it is an axiom that through any three points in space, not lying in a straight line, a plane may be drawn, *i.e.*, a surface which will wholly include

* The substance of the first half of the article has been previously expounded by me, in the *Academy* of Feb. 12, 1870. It is here set forth anew as necessary context.

every straight line joining any two of its points. Another axiom, about which there has been much discussion, affirms that through a point lying without a straight line only one straight line can be drawn parallel to the first; two straight lines that lie in the same plane and never meet, however far they may be produced, being called parallel. There are also axioms that determine the number of dimensions of space and its surfaces, lines and points, showing how they are continuous; as in the propositions, that a solid is bounded by a surface, a surface by a line and a line by a point, that the point is indivisible, that by the movement of a point a line is described, by that of a line a line or a surface, by that of a surface a surface or a solid, but by the movement of a solid a solid and nothing else is described.

Now what is the origin of such propositions, unquestionably true yet incapable of proof in a science where everything else is reasoned conclusion? Are they inherited from the divine source of our reason as the idealistic philosophers think, or is it only that the ingenuity of mathematicians has hitherto not been penetrating enough to find the proof? Every new votary, coming with fresh zeal to geometry, naturally strives to succeed where all before him have failed. And it is quite right that each should make the trial afresh; for, as the question has hitherto stood, it is only by the fruitlessness of one's own efforts that one can be convinced of the impossibility of finding a proof. Meanwhile solitary inquirers are always from time to time appearing who become so deeply entangled in complicated trains of reasoning that they can no longer discover their mistakes and believe they have solved the problem. The axiom of parallels especially has called forth a great number of seeming demonstrations.

The main difficulty in these inquiries is and always has been the readiness with which results of everyday experience become mixed up as apparent necessities of thought with the logical processes, so long as Euclid's method of constructive intuition is exclusively followed in geometry. In particular it is extremely difficult, on this method, to be quite sure that in the steps prescribed for the demonstration we have not involuntarily and unconsciously drawn in some most general results of experience, which the power of executing certain parts of the operation has already taught us practically. In drawing any subsidiary line for the sake of his demonstration, the well-trained geometer asks always if it is possible to draw such a line. It is notorious that problems of construction play an essential part in the system of geometry. At first sight, these appear to be practical operations, introduced for the training

of learners; but in reality they have the force of existential propositions. They declare that points, straight lines or circles, such as the problem requires to be constructed, are possible under all conditions, or they determine any exceptions that there may be. The point on which the investigations turn that we are going to consider is essentially of this nature. The foundation of all proof by Euclid's method consists in establishing the congruence of lines, angles, plane figures, solids, &c. To make the congruence evident, the geometrical figures are supposed to be applied to one another, of course without changing their form and dimensions. That this is in fact possible we have all experienced from our earliest youth. But, when we would build necessities of thought upon this assumption of the free translation of fixed figures with unchanged form to every part of space, we must see whether the assumption does not involve some presupposition of which no logical proof is given. We shall see later on that it does contain one of most serious import. But if so, every proof by congruence rests upon a fact which is obtained from experience only.

I offer these remarks at first only to show what difficulties attend the complete analysis of the presuppositions we make in employing the common constructive method. We evade them when we apply to the investigation of principles the analytical method of modern algebraical geometry. The whole process of algebraical calculation is a purely logical operation; it can yield no relation between the quantities submitted to it that is not already contained in the equations which give occasion for its being applied. The recent investigations have accordingly been conducted almost exclusively by means of the purely abstract methods of analytical geometry.

However, after discovering by the abstract method what are the points in question, we shall best get a distinct view of them by taking a region of narrower limits than our own world of space. Let us, as we logically may, suppose reasoning beings of only two dimensions to live and move on the surface of some solid body. We will assume that they have not the power of perceiving anything outside this surface, but that upon it they have perceptions similar to ours. If such beings worked out a geometry, they would of course assign only two dimensions to their space. They would ascertain that a point in moving describes a line, and that a line in moving describes a surface. But they could as little represent to themselves what further spatial construction would be generated by a surface moving out of itself, as we can represent what would be generated by a solid moving out of the space we know.

By the much abused expression "to represent" or "to be able to think how something happens" I understand—and I do not see how anything else can be understood by it without loss of all meaning—the power of imagining the whole series of sensible impressions that would be had in such a case. Now as no sensible impression is known relating to such an unheard-of event as the movement to a fourth dimension would be to us, or as a movement to our third dimension would be to the inhabitants of a surface, such a "representation" is as impossible as the "representation" of colours would be to one born blind, though a description of them in general terms might be given to him.

Our surface-beings would also be able to draw shortest lines in their superficial space. These would not necessarily be straight lines in our sense, but what are technically called *geodetic* lines of the surface on which they live, lines such as are described by a tense thread laid along the surface and which can slide upon it freely. I will henceforth speak of such lines as the *straightest* lines of any particular surface or given space, so as to bring out their analogy with the straight line in a plane.

Now if beings of this kind lived on an infinite plane, their geometry would be exactly the same as our planimetry. They would affirm that only one straight line is possible between two points, that through a third point lying without this line only one line can be drawn parallel to it, that the ends of a straight line never meet though it is produced to infinity, and so on. Their space might be infinitely extended, but even if there were limits to their movement and perception, they would be able to represent to themselves a continuation beyond these limits, and thus their space would appear to them infinitely extended, just as ours does to us, although our bodies cannot leave the earth and our sight only reaches as far as the visible fixed stars.

But intelligent beings of the kind supposed might also live on the surface of a sphere. Their shortest or straightest line between two points would then be an arc of the great circle passing through them. Every great circle passing through two points is by these divided into two parts, and if they are unequal the shorter is certainly the shortest line on the sphere between the two points, but also the other or larger arc of the same great circle is a geodetic or straightest line, *i.e.*, every smaller part of it is the shortest line between its ends. Thus the notion of the geodetic or straightest line is not quite identical with that of the shortest line. If the two given points are the ends of a diameter of the sphere, every plane passing through

this diameter cuts semicircles on the surface of the sphere all of which are shortest lines between the ends; in which case there is an infinite number of equal shortest lines between the given points. Accordingly, the axiom of there being only one shortest line between two points would not hold without a certain exception for the dwellers on a sphere.

Of parallel lines the sphere-dwellers would know nothing. They would declare that any two straightest lines, sufficiently produced, must finally cut not in one only but in two points. The sum of the angles of a triangle would be always greater than two right angles, increasing as the surface of the triangle grew greater. They could thus have no conception of geometrical similarity between greater and smaller figures of the same kind, for with them a greater triangle must have different angles from a smaller one. Their space would be unlimited, but would be found to be finite or at least represented as such.

It is clear, then, that such beings must set up a very different system of geometrical axioms from that of the inhabitants of a plane or from ours with our space of three dimensions, though the logical powers of all were the same; nor are more examples necessary to show that geometrical axioms must vary according to the kind of space inhabited. But let us proceed still farther.

Let us think of reasoning beings existing on the surface of an egg-shaped body. Shortest lines could be drawn between three points of such a surface and a triangle constructed. But if the attempt were made to construct congruent triangles at different parts of the surface, it would be found that two triangles with three pairs of equal sides would not have their angles equal. The sum of the angles of a triangle drawn at the sharper pole of the body would depart farther from two right angles than if the triangle were drawn at the blunter pole or at the equator. Hence it appears that not even such a simple figure as a triangle can be moved on such a surface without change of form. It would also be found that if circles of equal radii were constructed at different parts of such a surface (the length of the radii being always measured by shortest lines along the surface) the periphery would be greater at the blunter than at the sharper end.

We see accordingly that, if a surface admits of the figures lying on it being freely moved without change of any of their lines and angles as measured along it, the property is a special one and does not belong to every kind of surface. The condition under which a surface possesses this important property was pointed out by Gauss in his celebrated treatise on

the curvature of surfaces.* The "measure of curvature," as he called it, *i.e.*, the reciprocal of the product of the greatest and least radii of curvature, must be everywhere equal over the whole extent of the surface.

Gauss showed at the same time that this measure of curvature is not changed if the surface is bent without distension or contraction of any part of it. Thus we can roll up a flat sheet of paper into the form of a cylinder or of a cone without any change in the dimensions of the figures taken along the surface of the sheet. Or the hemispherical fundus of a bladder may be rolled into a spindle-shape without altering the dimensions on the surface. Geometry on a plane will therefore be the same as on a cylindrical surface; only in the latter case we must imagine that any number of layers of this surface, like the layers of a rolled sheet of paper, lie one upon another and that after each entire revolution round the cylinder a new layer is reached.

These observations are meant to give the reader a notion of a kind of surface the geometry of which is on the whole similar to that of the plane, but in which the axiom of parallels does not hold good, namely, a kind of curved surface which geometrically is, as it were, the counterpart of a sphere, and which has therefore been called the *pseudospherical surface* by the distinguished Italian mathematician, E. Beltrami, who has investigated its properties.† It is a saddle-shaped surface of which only limited pieces or strips can be connectedly represented in our space, but which may yet be thought of as infinitely continued in all directions, since each piece lying at the limit of the part constructed can be conceived as drawn back to the middle of it and then continued. The piece displaced must in the process change its flexure but not its dimensions, just as happens with a sheet of paper moved about a cone formed out of a plane rolled up. Such a sheet fits the conical surface in every part, but must be more bent near the vertex and cannot be so moved over the vertex as to be at the same time adapted to the existing cone and to its imaginary continuation beyond.

Like the plane and the sphere, pseudospherical surfaces have their measure of curvature constant, so that every piece of them

* Gauss, *Werke*, Bd. IV., p. 215, first published in *Commentationes Soc. Reg. Scientt. Gottingensis recentiores*, vol. vi., 1828.

† *Saggio di Interpretazione della Geometria Non-Euclidea*, Napoli, 1868.—*Teoria fondamentale degli Spazii di Curvatura costante*, *Annali di Matematica*, Ser. II., Tom. II., pp. 232-55. Both have been translated into French by J. Hoüel, *Annales Scientifiques de l' Ecole Normale*, Tom. V., 1869.

can be exactly applied to every other piece, and therefore all figures constructed at one place on the surface can be transferred to any other place with perfect congruity of form and perfect equality of all dimensions lying in the surface itself. The measure of curvature as laid down by Gauss, which is positive for the sphere and zero for the plane, would have a constant negative value for pseudospherical surfaces, because the two principal curvatures of a saddle-shaped surface have their concavity turned opposite ways.

A strip of a pseudospherical surface may, for example, be represented by the inner surface (turned towards the axis) of a solid anchor-ring. If the plane figure *aabb* (Fig. 1) is made to revolve on its axis of symmetry AB, the two arcs *ab* will

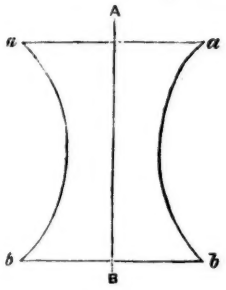

Fig. 1.

Fig. 2.

describe a pseudospherical concave-convex surface like that of the ring. Above and below, towards *aa* and *bb*, the surface will turn outwards with ever-increasing flexure, till it becomes perpendicular to the axis and ends at the edge with one curvature infinite. Or, again, half of a pseudospherical surface may be rolled up into the shape of a champagne-glass (Fig. 2) with tapering stem infinitely prolonged. But the surface is always necessarily bounded by a sharp edge beyond which it cannot be directly continued. Only by supposing each single piece of the edge cut loose and drawn along the surface of the ring or glass, can it be brought to places of different flexure at which farther continuation of the piece is possible.

In this way too the straightest lines of the pseudospherical surface may be infinitely produced. They do not like those on a sphere return upon themselves, but, as on a plane, only one shortest line is possible between two given points. The axiom of parallels does not however hold good. If a straightest line is given on the surface and a point without it, a whole pencil

of straightest lines may pass through the point, no one of which, though infinitely produced, cuts the first line; the pencil itself being limited by two straightest lines, one of which intersects one of the ends of the given line at an infinite distance, the other the other end.

As it happened, a system of geometry excluding the axiom of parallels was devised on Euclid's synthetic method, as far back as the year 1829, by N. J. Lobatschewsky, professor of mathematics at Kasan,* and it was proved that this system could be carried out as consistently as Euclid's. It agrees exactly with the geometry of the pseudospherical surfaces worked out recently by Beltrami.

Thus we see that in the geometry of two dimensions a surface is marked out as a plane or a sphere or a pseudospherical surface by the assumption that any figure may be moved about in all directions without change of dimensions. The axiom that there is only one shortest line between any two points distinguishes the plane and the pseudospherical surface from the sphere, and the axiom of parallels marks off the plane from the pseudosphere. These three axioms are in fact necessary and sufficient to define as a plane the surface to which Euclid's planimetry has reference, as distinguished from all other modes of space in two dimensions.

The difference between plane and spherical geometry has been long evident, but the meaning of the axiom of parallels could not be understood till Gauss had developed the notion of surfaces flexible without dilatation and consequently that of the possibly infinite continuation of pseudospherical surfaces. Inhabiting a space of three dimensions and endowed with organs of sense for their perception, we can represent to ourselves the various cases in which beings on a surface might have to develop their perception of space; for we have only to limit our own perceptions to a narrower field. It is easy to think away perceptions that we have; but it is very difficult to imagine perceptions to which there is nothing analogous in our experience. When, therefore, we pass to space of three dimensions we are stopped in our power of representation by the structure of our organs and the experiences got through them which correspond only to the space in which we live.

There is however another way of treating geometry scientifically. All known space-relations are measurable, that is they may be brought to determination of magnitudes (lines, angles, surfaces, volumes). Problems in geometry can therefore be solved by finding methods of calculation for arriving at un-

* *Principien der Geometrie*, Kasan, 1829-30.

known magnitudes from known ones. This is done in analytical geometry, where all forms of space are treated only as quantities and determined by means of other quantities. Even the axioms themselves make reference to magnitudes. The straight line is defined as the *shortest* between two points, which is a determination of quantity. The axiom of parallels declares that if two straight lines in a plane do not intersect (are parallel), the alternate angles, or the corresponding angles, made by a third line intersecting them, are equal; or it may be laid down instead that the sum of the angles of any triangle is equal to two right angles. These are determinations of quantity.

Now we may start with this view of space, according to which the position of a point may be determined by measurements in relation to any given figure (system of co-ordinates), taken as fixed, and then inquire what are the special characteristics of our space as manifested in the measurements that have to be made, and how it differs from other extended quantities of like variety. This path was first entered by one too early lost to science, B. Riemann of Göttingen.* It has the peculiar advantage that all its operations consist in pure calculation of quantities, which quite obviates the danger of habitual perceptions being taken for necessities of thought.

The number of measurements necessary to give the position of a point is equal to the number of dimensions of the space in question. In a line the distance from one fixed point is sufficient, that is to say, one quantity; in a surface the distances from two fixed points must be given; in space, the distances from three; or we require as on the earth longitude, latitude and height above the sea, or, as is usual in analytical geometry, the distances from three co-ordinate planes. Riemann calls a system of differences in which one thing can be determined by n measurements an "$n$fold extended aggregate" or an "aggregate of n dimensions." Thus the space in which we live is a three-fold, a surface is a twofold and a line is a simple extended aggregate of points. Time also is an aggregate of one dimension. The system of colours is an aggregate of three dimensions, inasmuch as each colour, according to the investigations of Th. Young and Clerk Maxwell, may be represented as a mixture of three primary colours, taken in definite quantities. The particular mixtures can be actually made with the colour-top.

In the same way we may consider the system of simple tones as an aggregate of two dimensions, if we distinguish only pitch

* Ueber die Hypothesen welche der Geometrie zu Grunde liegen, Habilitationsschrift vom 10 Juni 1854. (*Abhandl. der königl. Gesellsch. zu Göttingen*, Bd. XIII.).

and intensity and leave out of account differences of timbre. This generalisation of the idea is well-suited to bring out the distinction between space of three dimensions and other aggregates. We can, as we know from daily experience, compare the vertical distance of two points with the horizontal distance of two others, because we can apply a measure first to the one pair and then to the other. But we cannot compare the difference between two tones of equal pitch and different intensity with that between two tones of equal intensity and different pitch. Riemann showed by considerations of this kind that the essential foundation of any system of geometry is the expression that it gives for the distance between two points lying in any direction from one another, beginning with the interval as infinitesimal. He took from analytical geometry the most general form for this expression, that, namely, which leaves altogether open the kind of measurements by which the position of any point is given.* Then he showed that the kind of free mobility without change of form which belongs to bodies in our space can only exist when certain quantities yielded by the calculation†—quantities that coincide with Gauss's measure of surface-curvature when they are expressed for surfaces—have everywhere an equal value. For this reason Riemann calls these quantities, when they have the same value in all directions for a particular spot, the measure of curvature of the space at this spot. To prevent misunderstanding I will once more observe that this so-called measure of space-curvature is a quantity obtained by purely analytical calculation and that its introduction involves no suggestion of relations that would have a meaning only for sense-perception. The name is merely taken, as a short expression for a complex relation, from the one case in which the quantity designated admits of sensible representation.

Now whenever the value of this measure of curvature in any space is everywhere zero, that space everywhere conforms to the axioms of Euclid; and it may be called a *flat (homaloid)* space in contradistinction to other spaces, analytically constructible, that may be called *curved* because their measure of curvature has a value other than zero. Analytical geometry may be as completely and consistently worked out for such spaces as ordinary geometry for our actually existing homaloid space.

* For the square of the distance of two infinitely near points the expression is a homogeneous quadric function of the differentials of their co-ordinates.

† They are algebraical expressions compounded from the co-efficients of the various terms in the expression for the square of the distance of two contiguous points and from their differential quotients.

If the measure of curvature is positive we have *spherical* space, in which straightest lines return upon themselves and there are no parallels. Such a space would, like the surface of a sphere, be unlimited but not infinitely great. A constant negative measure of curvature on the other hand gives *pseudo-spherical* space, in which straightest lines run out to infinity and a pencil of straightest lines may be drawn in any flattest surface through any point which do not intersect another given straightest line in that surface.

Beltrami* has rendered these last relations imaginable by showing that the points, lines and surfaces of a pseudo-spherical space of three dimensions can be so portrayed in the interior of a sphere in Euclid's homaloid space, that every straightest line or flattest surface of the pseudo-spherical space is represented by a straight line or a plane, respectively, in the sphere. The surface itself of the sphere corresponds to the infinitely distant points of the pseudo-spherical space; and the different parts of this space, as represented in the sphere, become smaller the nearer they lie to the spherical surface, diminishing more rapidly in the direction of the radii than in that perpendicular to them. Straight lines in the sphere which only intersect beyond its surface correspond to straightest lines of the pseudospherical space which never intersect.

Thus it appeared that space, considered as a region of measurable quantities, does not at all correspond with the most general conception of an aggregate of three dimensions, but involves also special conditions, depending on the perfectly free mobility of solid bodies without change of form to all parts of it and with all possible changes of direction, and, farther, on the special value of the measure of curvature which for our actual space equals, or at least is not distinguishable from, zero. This latter definition is given in the axioms of straight lines and parallels.

Whilst Riemann entered upon this new field from the side of the most general and fundamental questions of analytical geometry, I myself arrived at similar conclusions,† partly from seeking to represent in space the system of colours, involving the comparison of one threefold extended aggregate with another, and partly from inquiries on the origin of our ocular measure for distances in the field of vision. Riemann starts by assuming the above-mentioned algebraical expression which represents in the most general form the distance

* *Teoria fondamentale, &c., ut sup.*

† Ueber die Thatsachen die der Geometrie zum Grunde liegen (*Nachrichten von der konigl. Ges. d. Wiss. zu Göttingen*, Juni 3, 1868).

between two infinitely near points, and deduces therefrom the conditions of mobility of rigid figures. I, on the other hand, starting from the observed fact that the movement of rigid figures is possible in our space, with the degree of freedom that we know, deduce the necessity of the algebraic expression taken by Riemann as an axiom. The assumptions that I had to make as the basis of the calculation were the following.

First, to make algebraical treatment possible, it must be assumed that the position of any point A can be determined, in relation to certain given figures taken as fixed bases, by measurement of some kind of magnitudes, as lines, angles between lines, angles between surfaces and so forth. The measurements necessary for determining the position of A are known as its co-ordinates. In general the number of co-ordinates necessary to the complete determination of the position of a point marks the number of the dimensions of the space in question. It is further assumed that with the movement of the point A the magnitudes used as co-ordinates vary continuously.

Secondly, the definition of a solid body, or rigid system of points, must be made in such a way as to admit of magnitudes being compared by congruence. As we must not at this stage assume any special methods for the measurement of magnitudes, our definition can, in the first instance, run only as follows: Between the co-ordinates of any two points belonging to a solid body, there must be an equation which, however the body is moved, expresses a constant spatial relation (proving at last to be the distance) between the two points, and which is the same for congruent pairs of points, that is to say, such pairs as can be made successively to coincide in space with the same fixed pair of points.

However indeterminate in appearance, this definition involves most important consequences, because with increase in the number of points the number of equations increases much more quickly than the number of co-ordinates which they determine. Five points, A, B, C, D, E give ten different pairs of points (AB, AC, AD, AE, BC, BD, BE, CD, CE, DE) and therefore ten equations, involving in space of three dimensions fifteen variable co-ordinates. But of these fifteen six must remain arbitrary if the system of five points is to admit of free movement and rotation, and thus the ten equations can determine only nine co-ordinates as functions of the six variables. With six points we obtain fifteen equations for twelve quantities, with seven points twenty-one equations for fifteen, and so on. Now from n independent equations we can determine n contained quantities, and if we have more

than n equations, the superfluous ones must be deducible from the first n. Hence it follows that the equations which subsist between the co-ordinates of each pair of points of a solid body must have a special character, seeing that, when in space of three dimensions they are satisfied for nine pairs of points as formed out of any five points, the equation for the tenth pair follows by logical consequence. Thus our assumption for the definition of solidity becomes quite sufficient to determine the kind of equations holding between the co-ordinates of two points rigidly connected.

Thirdly, the calculation must further be based on the fact of a peculiar circumstance in the movement of solid bodies, a fact so familiar to us that but for this inquiry it might never have been thought of as something that need not be. When in our space of three dimensions two points of a solid body are kept fixed, its movements are limited to rotations round the straight line connecting them. If we turn it completely round once, it again occupies exactly the position it had at first. This fact that rotation in one direction always brings a solid body back into its original position needs special mention. A system of geometry is possible without it. This is most easily seen in the geometry of a plane. Suppose that with every rotation of a plane figure its linear dimensions increased in proportion to the angle of rotation, the figure after one whole rotation through 360 degrees would no longer coincide with itself as it was originally. But any second figure that was congruent with the first in its original position might be made to coincide with it in its second position by being also turned through 360 degrees. A consistent system of geometry would be possible upon this supposition, which does not come under Riemann's formula.

On the other hand I have shown that the three assumptions taken together form a sufficient basis for the starting-point of Riemann's investigation, and thence for all his further results relating to the distinction of different spaces according to their measure of curvature.

It still remained to be seen whether the laws of motion as dependent on moving forces could also be consistently transferred to spherical or pseudospherical space. This investigation has been carried out by Professor Lipschitz of Bonn.* It is found that the comprehensive expression for all the laws of dynamics, Hamilton's principle, may be directly transferred to

* Untersuchungen über die ganzen homogenen Functionen von n Differentialen (Borchardt's *Journal für Mathematik*, Bde. lxx. 3, 71; lxxiiii. 3, 1); Untersuchung eines Problems der Variationsrechnung (Ibid. Bd. lxxiv.)

spaces of which the measure of curvature is other than zero. Accordingly, in this respect also the disparate systems of geometry lead to no contradiction.

We have now to seek an explanation of the special characteristics of our own flat space, since it appears that they are not implied in the general notion of an extended quantity of three dimensions and of the free mobility of bounded figures therein. Necessities of thought, involved in such a conception, they are not. Let us then examine the opposite assumption as to their origin being empirical, and see if they can be inferred from facts of experience and so established, or if, when tested by experience, they are perhaps to be rejected. If they are of empirical origin we must be able to represent to ourselves connected series of facts indicating a different value for the measure of curvature from that of Euclid's flat space. But if we can imagine such spaces of other sorts, it cannot be maintained that the axioms of geometry are necessary consequences of an *à priori* transcendental form of intuition, as Kant thought.

The distinction between spherical, pseudospherical and Euclid's geometry depends, as was above observed, on the value of a certain constant called by Riemann the measure of curvature of the space in question. The value must be zero for Euclid's axioms to hold good. If it were not zero, the sum of the angles of a large triangle would differ from that of the angles of a small one, being larger in spherical, smaller in pseudospherical space. Again, the geometrical similarity of large and small solids or figures is possible only in Euclid's space. All systems of practical mensuration that have been used for the angles of large rectilinear triangles, and especially all systems of astronomical measurement which make the parallax of the immeasurably distant fixed stars equal to zero (in pseudospherical space the parallax even of infinitely distant points would be positive), confirm empirically the axiom of parallels and show the measure of curvature of our space thus far to be indistinguishable from zero. It remains, however, a question, as Riemann observed, whether the result might not be different if we could use other than our limited base-lines, the greatest of which is the major axis of the earth's orbit.

Meanwhile, we must not forget that all geometrical measurements rest ultimately upon the principle of congruence. We measure the distance between points by applying to them the compass, rule or chain. We measure angles by bringing the divided circle or theodolite to the vertex of the angle. We also determine straight lines by the path of rays of light which in our experience is rectilinear; but that light travels in shortest

lines as long as it continues in a medium of constant refraction would be equally true in space of a different measure of curvature. Thus all our geometrical measurements depend on our instruments being really, as we consider them, invariable in form, or at least on their undergoing no other than the small changes we know of as arising from variation of temperature or from gravity acting differently at different places.

In measuring we only employ the best and surest means we know of to determine what we otherwise are in the habit of making out by sight and touch or by pacing. Here our own body with its organs is the instrument we carry about in space. Now it is the hand, now the leg that serves for a compass, or the eye turning in all directions is our theodolite for measuring arcs and angles in the visual field.

Every comparative estimate of magnitudes or measurement of their spatial relations proceeds therefore upon a supposition as to the behaviour of certain physical things, either the human body or other instruments employed. The supposition may be in the highest degree probable and in closest harmony with all other physical relations known to us, but yet it passes beyond the scope of pure space-intuition.

It is in fact possible to imagine conditions for bodies apparently solid such that the measurements in Euclid's space become what they would be in spherical or pseudospherical space. Let me first remind the reader that if all the linear dimensions of other bodies and our own at the same time were diminished or increased in like proportion, as for instance to half or double their size, we should with our means of space-perception be utterly unaware of the change. This would also be the case if the distension or contraction were different in different directions, provided that our own body changed in the same manner and further that a body in rotating assumed at every moment, without suffering or exerting mechanical resistance, the amount of dilatation in its different dimensions corresponding to its position at the time. Think of the image of the world in a convex mirror. The common silvered globes set up in gardens give the essential features, only distorted by some optical irregularities. A well-made convex mirror of moderate aperture represents the objects in front of it as apparently solid and in fixed positions behind its surface. But the images of the distant horizon and of the sun in the sky lie behind the mirror at a limited distance, equal to its focal length. Between these and the surface of the mirror are found the images of all the other objects before it, but the images are diminished and flattened in proportion to the distance of their objects from the mirror. The flattening, or decrease in the third dimension, is

relatively greater than the decrease of the surface-dimensions. Yet every straight line or every plane in the outer world is represented by a straight line or a plane in the image. The image of a man measuring with a rule a straight line from the mirror would contract more and more the farther he went, but with his shrunken rule the man in the image would count out exactly the same number of centimetres as the real man. And, in general, all geometrical measurements of lines or angles made with regularly varying images of real instruments would yield exactly the same results as in the outer world, all congruent bodies would coincide on being applied to one another in the mirror as in the outer world, all lines of sight in the outer world would be represented by straight lines of sight in the mirror. In short I do not see how men in the mirror are to discover that their bodies are not rigid solids and their experiences good examples of the correctness of Euclid's axioms. But if they could look out upon our world as we can look into theirs, without overstepping the boundary, they must declare it to be a picture in a spherical mirror, and would speak of us just as we speak of them; and if two inhabitants of the different worlds could communicate with one another, neither, so far as I can see, would be able to convince the other that he had the true, the other the distorted relations. Indeed I cannot see that such a question would have any meaning at all so long as mechanical considerations are not mixed up with it.

Now Beltrami's representation of pseudospherical space in a sphere of Euclid's space is quite similar except that the background is not a plane as in the convex mirror, but the surface of a sphere, and that the proportion in which the images as they approach the spherical surface contract, has a different mathematical expression. If we imagine then, conversely, that in the sphere, for the interior of which Euclid's axioms hold good, moving bodies contract as they depart from the centre like the images in a convex mirror, and in such a way that their representatives in pseudospherical space retain their dimensions unchanged,—observers whose bodies were regularly subjected to the same change would obtain the same results from the geometrical measurements they could make as if they lived in pseudospherical space.

We can even go a step further, and infer how the objects in a pseudospherical world, were it possible to enter one, would appear to an observer whose eye-measure and experiences of space had been gained like ours in Euclid's space. Such an observer would continue to look upon rays of light or the lines of vision as straight lines, such as are met with in flat space

and as they really are in the spherical representation of pseudospherical space. The visual image of the objects in pseudospherical space would thus make the same impression upon him as if he were at the centre of Beltrami's sphere. He would think he saw the most remote objects round about him at a finite distance,* let us suppose a hundred feet off. But as he approached these distant objects, they would dilate before him, though more in the third dimension than superficially, while behind him they would contract. He would know that his eye judged wrongly. If he saw two straight lines which in his estimate ran parallel for the hundred feet to his world's end, he would find on following them that the farther he advanced the more they diverged, because of the dilatation of all the objects to which he approached. On the other hand behind him their distance would seem to diminish, so that as he advanced they would appear always to diverge more and more. But two straight lines which from his first position seemed to converge to one and the same point of the background a hundred feet distant, would continue to do this however far he went, and he would never reach their point of intersection.

Now we can obtain exactly similar images of our real world if we look through a large convex lens of corresponding negative focal length, or even through a pair of convex spectacles if ground somewhat prismatically to resemble pieces of one continuous larger lens. With these, like the convex mirror, we see remote objects as if near to us, the most remote appearing no farther distant than the focus of the lens. In going about with this lens before the eyes, we find that the objects we approach dilate exactly in the manner I have described for pseudospherical space. Now any one using a lens, were it even so strong as to have a focal length of only sixty inches, to say nothing of a hundred feet, would perhaps observe for the first moment that he saw objects brought nearer. But after going about a little the illusion would vanish, and in spite of the false images he would judge of the distances rightly. We have every reason to suppose that what happens in a few hours to any one beginning to wear spectacles would soon enough be experienced in pseudospherical space. In short, pseudospherical space would not seem to us very strange, comparatively speaking; we should only at first be subject to illusions in measuring by eye the size and distance of the more remote objects.

There would be illusions of an opposite description, if, with

* The reciprocal of the square of this distance, expressed in negative quantity, would be the measure of curvature of the pseudospherical space.

eyes practised to measure in Euclid's space, we entered a spherical space of three dimensions. We should suppose the more distant objects to be more remote and larger than they are, and should find on approaching them that we reached them more quickly than we expected from their appearance. But we should also see before us objects that we can fixate only with diverging lines of sight, namely, all those at a greater distance from us than the quadrant of a great circle. Such an aspect of things would hardly strike us as very extraordinary, for we can have it even as things are if we place before the eye a slightly prismatic glass with the thicker side towards the nose: the eyes must then become divergent to take in distant objects. This excites a certain feeling of unwonted strain in the eyes but does not perceptibly change the appearance of the objects thus seen. The strangest sight, however, in the spherical world would be the back of our own head, in which all visual lines not stopped by other objects would meet again, and which must fill the extreme background of the whole perspective picture.

At the same time it must be noted that as a small elastic flat disc, say of india-rubber, can only be fitted to a slightly curved spherical surface with relative contraction of its border and distension of its centre, so our bodies, developed in Euclid's flat space, could not pass into curved space without undergoing similar distensions and contractions of their parts, their coherence being of course maintained only in as far as their elasticity permitted their bending without breaking. The kind of distension must be the same as in passing from a small body imagined at the centre of Beltrami's sphere to its pseudospherical or spherical representation. For such passage to appear possible, it will always have to be assumed that the body is sufficiently elastic and small in comparison with the real or imaginary radius of curvature of the curved space into which it is to pass.

These remarks will suffice to show the way in which we can infer from the known laws of our sensible perceptions the series of sensible impressions which a spherical or pseudospherical world would give us, if it existed. In doing so we nowhere meet with inconsistency or impossibility any more than in the calculation of its metrical proportions. We can represent to ourselves the look of a pseudospherical world in all directions just as we can develop the conception of it. Therefore it cannot be allowed that the axioms of our geometry depend on the native form of our perceptive faculty, or are in any way connected with it.

It is different with the three dimensions of space. As all

our means of sense-perception extend only to space of three dimensions, and a fourth is not merely a modification of what we have but something perfectly new, we find ourselves by reason of our bodily organisation quite unable to represent a fourth dimension.

In conclusion I would again urge that the axioms of geometry are not propositions pertaining only to the pure doctrine of space. As I said before, they are concerned with quantity. We can speak of quantities only when we know of some way by which we can compare, divide and measure them. All space-measurements and therefore in general all ideas of quantities applied to space assume the possibility of figures moving without change of form or size. It is true we are accustomed in geometry to call such figures purely geometrical solids, surfaces, angles and lines, because we abstract from all the other distinctions physical and chemical of natural bodies; but yet one physical quality, rigidity, is retained. Now we have no other mark of rigidity of bodies or figures but congruence, whenever they are applied to one another at any time or place, and after any revolution. We cannot however decide by pure geometry and without mechanical considerations whether the coinciding bodies may not both have varied in the same sense.

If it were useful for any purpose, we might with perfect consistency look upon the space in which we live as the apparent space behind a convex mirror with its shortened and contracted background; or we might consider a bounded sphere of our space, beyond the limits of which we perceive nothing further, as infinite pseudospherical space. Only then we should have to ascribe to the bodies which appear as solid and to our own body at the same time corresponding distensions and contractions, and we must change our system of mechanical principles entirely; for even the proposition that every point in motion, if acted upon by no force, continues to move with unchanged velocity in a straight line, is not adapted to the image of the world in the convex-mirror. The path would indeed be straight, but the velocity would depend upon the place.

Thus the axioms of geometry are not concerned with space-relations only but also at the same time with the mechanical deportment of solidest bodies in motion. The notion of rigid geometrical figure might indeed be conceived as transcendental in Kant's sense, namely, as formed independently of actual experience, which need not exactly correspond therewith, any more than natural bodies do ever in fact correspond exactly to the abstract notion we have obtained of them by induction.

Taking the notion of rigidity thus as a mere ideal, a strict Kantian might certainly look upon the geometrical axioms as propositions given *à priori* by transcendental intuition which no experience could either confirm or refute, because it must first be decided by them whether any natural bodies can be considered as rigid. But then we should have to maintain that the axioms of geometry are not synthetic propositions, as Kant held them: they would merely define what qualities and deportment a body must have to be recognised as rigid.

But if to the geometrical axioms we add propositions relating to the mechanical properties of natural bodies, were it only the axiom of inertia or the single proposition that the mechanical and physical properties of bodies and their mutual reactions are, other circumstances remaining the same, independent of place, such a system of propositions has a real import which can be confirmed or refuted by experience, but just for the same reason can also be got by experience. The mechanical axiom just cited is in fact of the utmost importance for the whole system of our mechanical and physical conceptions. That rigid solids, as we call them, which are really nothing else than elastic solids of great resistance, retain the same form in every part of space if no external force affects them, is a single case falling under the general principle.

For the rest, I do not, of course, suppose that mankind first arrived at space-intuitions in agreement with the axioms of Euclid by any carefully executed systems of exact measurement. It was rather a succession of every day experiences, especially the perception of the geometrical similarity of great and small bodies, only possible in flat space, that led to the rejection, as impossible, of every geometrical representation at variance with this fact. For this no knowledge of the necessary logical connection between the observed fact of geometrical similarity and the axioms was needed, but only an intuitive apprehension of the typical relations between lines, planes, angles, &c., obtained by numerous and attentive observations —an intuition of the kind the artist possesses of the objects he is to represent, and by means of which he decides surely and accurately whether a new combination which he tries will correspond or not to their nature. It is true that we have no word but *intuition* to mark this; but it is knowledge empirically gained by the aggregation and reinforcement of similar recurrent impressions in memory, and not a transcendental form given before experience. That other such empirical intuitions of fixed typical relations, when not clearly comprehended, have frequently enough been taken by metaphysicians for *à priori* principles, is a point on which I need not insist.

To sum up, the final outcome of the whole inquiry may be thus expressed:—

(1.) The axioms of geometry, taken by themselves out of all connection with mechanical propositions, represent no relations of real things. When thus isolated, if we regard them with Kant as forms of intuition transcendentally given, they constitute a form into which any empirical content whatever will fit and which therefore does not in any way limit or determine beforehand the nature of the content. This is true, however, not only of Euclid's axioms, but also of the axioms of spherical and pseudospherical geometry.

(2.) As soon as certain principles of mechanics are conjoined with the axioms of geometry we obtain a system of propositions which has real import, and which can be verified or overturned by empirical observations, as from experience it can be inferred. If such a system were to be taken as a transcendental form of intuition and thought, there must be assumed a pre-established harmony between form and reality.

H. Helmholtz.

II.—ASSOCIATIONISM AND THE ORIGIN OF MORAL IDEAS.

Can the fact that man distinguishes right from wrong be explained by the association of ideas? This is the question which I mean to discuss, and as I feel compelled to answer it in the negative, it is the more requisite that I should acknowledge at the outset association to be a great and fruitful principle, of wide range and powerful influence in the mental economy. It is not confined to any particular province of human nature, but operates alike among our thoughts, feelings and volitions, bringing them into the most varied combinations. Its laws are essential conditions of memory and reminiscence, of all the powers of intellectual acquisitiveness and inventiveness, of imagination and reasoning; they are implied in the perfecting and perverting of every perceptive faculty and emotional capacity; and largely determine the growth of character both in individuals and communities. In a word, it is mainly through association that mental energy is accumulated and mental change effected. It is the sovereign means of eliciting and educating, of drawing out and developing, the original endowments of the mind, and it is continually altering for the better or worse all temperaments, dispositions, habits,

&c., already acquired. Then, manifestly the power of association is as great within the ethical as within any other sphere of consciousness; and manifestly a clear apprehension of the laws of association is of prime importance to every psychologist who desires to explain the upbuilding of the moral nature in individuals or the formation of the moral character of communities. Thousands of moral phenomena, both good and bad, are explicable by these laws, and by these laws alone. Probably association determines and colours to some extent all our moral judgments. The larger portion of the teaching of the associationists in regard to the moral nature and to moral judgment is, in fact, not distinctive, and may fairly be accepted and utilised by psychologists of all schools.

It is only with a very small part, a single position, of what is distinctive in the teaching of the associationist philosophers that we are at present concerned. The question is,—Can association account wholly for moral discrimination? Are all moral ideas resolvable into non-moral elements? Is there nothing original in the perceptions of conscience? But this question obviously cannot be answered without a general consideration of the theory of association in relation to it. Only after such preliminary investigation can the particular associationist answers which have been proposed be satisfactorily examined.

What is distinctive of the teaching of associationists in regard to moral as well as to ordinary cognition appears to their opponents to arise simply from the exaggeration of a principle the general truth and importance of which are admitted to be unquestionable. Associationists seem to other psychologists to have overlooked the limits within which their principle is applicable, and consequently, to have put it to perform what is beyond its power. Association is a fact which itself needs explanation; a process which implies a subject, powers, conditions and constituent elements. Association has no existence at all apart from things associated, and the mere association even of things associated explains nothing. No physical compound is accounted for simply by the association of its components. Water cannot be resolved into the association of oxygen and hydrogen; the association of these two chemical elements is only the condition of the union of their properties and of the operation of their latent powers. Thus even if the associations of mental states were essentially similar to the syntheses of material substances, all psychological explanations which went no deeper than the mere fact of association would be superficial and unsatisfactory; even in that case the association would in every single instance require to be explained.

But association in mind cannot account for even so much as association in material nature. It involves other limitations which greatly restrict its sway. Mental states have not, like chemical substances, or even, relatively to us, like physical qualities, a distinct and independent existence and action. They exist and operate only as modes of a conscious and active mind. It is not they that combine, but the mind which combines them. It is not sensations, not impressions of any kind, which originate complex ideas; they only furnish occasion for the mind to exercise its own powers, and in the exercise of its own powers it must act according to certain principles deeper than the so-called laws of association. The association of ideas presupposes a mind possessed of ideas and possessed of the power of associating them. We could not have learned that we had the power of association but by the process of association, yet having associated ideas we know that the power must have pre-existed in order to make the process possible. The associationist always, consciously or unconsciously, assumes that ideas, like chemical substances, have a distinct existence and properties of their own, and, in consequence, attributes to their self-combination the very power on which their combination is dependent, as well as the conditions under which that power operates. To anti-associationists this assumption seems erroneous and unscientific. Mental states, they think, do not combine of themselves; it is the mind which combines them, which associates things that have been proximate in time, or co-adjacent in space, or that are like or unlike each other, and it could not do so unless it had ideas or intuitions of time, space and likeness to start with. This view they find strongly confirmed by examination of the attempts which have been made to explain ideas like those of space and time as the results of processes of association, these attempts invariably assuming at some point or other the ideas which they profess to account for. But if all association presupposes original ideas as its conditions, there can be nothing strange or exceptional in certain special associations involving an idea of rightness which also cannot itself be explained by a process of association. There can, indeed, be no doubt that the idea of rightness may give rise to associations and become a principle of association, inasmuch as we constantly transfer thoughts and feelings of right from one act to another or from persons to acts, but then what we transfer in these cases is a something already existing in thought, a condition of a particular kind of thought, a something which explains the transference instead of the transference explaining it. Does association ever explain more as regards our moral judgments than such transference?

Proof that it does seems to the majority of psychologists still wanting. They find even the latest and most ingenious attempts to show that association not only transfers moral ideas to other than moral actions but originates moral ideas to be unsuccessful. Sometimes the idea accounted for is illegitimately divested of its moral qualities, as when J. S. Mill identifies justice with the desire to do hurt to a person who has done harm to you or to somebody with whom you sympathise, which is neither justice nor any other moral principle; but more frequently moral elements are unconsciously introduced into the explanation when sensation and association are supposed to be doing everything. The analyses of conscience by Hartley, Mackintosh and Bain, for example, appear to those who do not ascribe to association anything like creative power to be largely vitiated in this latter way.

It is further important to remark that all plausible argumentation designed to show that moral ideas are not merely transferred by association from one act to another or from persons to acts, but are originated by the transmutation through association of sensuous impressions into moral convictions, proceeds on what is called the law of inseparable association, and that the views of associationists regarding this so-called law are neither clear nor correct. From the very rise of associationism properly so-called it has been seen that it could only hope to achieve what it ventured to attempt if association were capable of inseparably uniting the mental states which it may happen to bring into contact and relationship. The two earliest English associationists—the anonymous author of the *Inquiry into the Origin of Human Appetites and Affections* (Gay) and Hartley—proceed throughout on the supposition that association possesses this power of indissolubly connecting and combining ideas. Contemporary associationists accept it without hesitation. Probably few of them felt the *naïveté* of J. S. Mill's affirmation that psychologists of the opposite school had "not so much rejected as ignored" the law in question, and "had never, even for an instant, brought the powers of their minds into real and effective contact with it." If this alleged law be ill-founded associationism can obviously fulfil none of its more ambitious promises. And to most psychologists the evidence for its truth seems extremely small. Literally taken, inseparable association means nothing more than that the ideas associated are inseparable. There are ideas thus associated. Cause and effect, whole and part, colour and extension, for example, are always thought of together and cannot be thought of apart. Their separation is inconceivable, and what we cannot conceive to be separated we hold to be inseparable. The associationist,

however, does not mean by inseparable association the mere fact of indissoluble conjunction. He means by it further that the conjunction is one which has *grown to be* indissoluble,—one which *association has made* indissoluble. But can he show that any strictly inseparable association has grown at all. Can he show that any of the ideas which cannot be conceived as existing apart either ever did exist apart or were ever able to be thought of by us as existing apart? Can he give us any reason for thinking that our belief in necessary truth was at one time imperfect? I do not find that he can. Where is the evidence that the most ignorant savage can any more conceive of a change without a cause than the most highly trained thinker? Or that a child can conceive of colour without extension one whit better than a grown man? Who has the slightest remembrance of a time when he had doubts about twice two being four? If we have acquired by association the belief that two straight lines cannot enclose a space we must have originally been able to believe that they could enclose a space. But what proof is there that we could ever conceive this? None. When J. S. Mill wrote, "There are no counter-associations in this case, and consequently the primary association, being founded on an experience beginning from birth, and never for many minutes intermitted in our waking hours, easily becomes inseparable," he had manifestly forgotten to ask himself why there were no "counter-associations," as he certainly forgot to disprove that the explanation of there being none was that reason could not entertain a counter-association in such a case. The so-called primary association is here inseparable, and consequently there are no counter-associations—not, there are no counter-associations, and consequently the primary association becomes inseparable. The mind cannot learn by association that certain ideas are inseparably united, or, in other words, that certain truths are necessary, unless these ideas once seemed to it separate and these truths unnecessary; that is, unless it began by being able to conceive what is now absolutely inconceivable to it. But of any such time and any such power associationists have still the evidence to produce. Hence their hypothesis of inseparable association has as yet received no truly scientific verification. If we could not conceive the inconceivable at the beginning any more than now, if what seems impossible at present never seemed possible, inseparable associations cannot have been formed by association at all. If the belief of necessary truth be of its own nature exclusive of counter-associations there is no room either for the commencement or continuance of a process of association by which reason may

attain to the belief of necessary truth. To this it has to be added that wherever there is any evidence of ideas having been connected by a process of association there the ideas are always separable. No matter how frequent and uninterrupted may have been their recurrence, and however close and permanent may have become in consequence their conjunction, still they never are inseparable. We have always observed day and night succeed each other, but we have no difficulty in conceiving them apart, in conceiving either night or day to be eternal; we have never seen the sun or moon elsewhere than in the sky, but we can easily imagine them out of it. Let the associationists produce a single case of conjunction undoubtedly produced by association which has become inseparable, and it will tell more in their favour than volumes of argument. They have not yet done so: that is to say, they have as yet done nothing to prove their alleged law of inseparable association, without which they must themselves confess it hopeless to attempt to resolve conscience into sensational elements.

While proof that two or more ideas can become by repeated association inseparably combined is manifestly binding on whoever would establish that there is nothing original in moral ideas, it cannot supply of itself an all-sufficient means of reaching the required demonstration. It would place in the hands of associationists an instrument of great power, but yet not an instrument adequate to accomplish what they propose. They require to make a new and still greater assumption, and their courage is equal to the occasion. They need to suppose that the sum of a number of inseparably associated ideas becomes a new existence in which the associated ideas are not only inseparable but indistinguishable, and they assert that such is the case. This is obviously much more than inseparable association. If true at all, it should be regarded as a separate law and have a name of its own. It has as yet only been treated of as an application of the law of inseparable association. It is at this point that the perverting power of physical analogies becomes specially manifest. When a wheel,—to use James Mill's illustration,—on the seven parts of which the seven prismatic colours are respectively painted, is made to revolve with sufficient rapidity, it appears not of seven colours, but of one uniform colour, white, the sensation of which is apparently single and simple although formed by the combination and coalescence of seven sensations distinct from it and from one another. When a chemist pours one gas into another or one liquid into another, the third thing which he produces is often in all its physical properties utterly unlike either of its components. Associationists hold that it is not otherwise with

the states of mind which are connected by the ties of suggestion; that these states in like manner, if sufficiently associated, come not only to be inseparable, or at least always unseparated, but to coalesce, to run into one, which although complex is to consciousness simple and single, and possessed of quite other characteristics than those which by their union formed it. And it is obvious that this is a quite essential part of the theory so far as it is applied to explain the origin of moral ideas. It is only if sensations of pleasure and pain can undergo such a transformation, only if they can thus be made to become something quite unlike themselves, that the attempt to analyse either moral cognition or moral action into them becomes plausible. Is it, then, made out that mental states thus coalesce into compounds with quite other properties than their own? By no means. It can only be made out by the production of instances, but not a single relevant instance has been produced. James Mill gets the honour, indeed, of having by an adequate induction established the fact, but the only instances he gives are such complex ideas as those of tree, stone, man, horse, in which whatever there may be there is certainly no coalescence of simple states into a complex state entirely distinct from its components, but only a close conjunction of the constituent single states. Colour, extension, roughness, hardness, smoothness, taste, smell, conjoin to form the one idea tree, but they do not form it by coalescence into an idea which has properties not to be found in any of its constituent parts, otherwise our idea of a tree would be that of something which had not colour, extension, roughness, hardness, taste, smell, but other properties,—which would be a very curious and erroneous idea of a tree. This remark may be extended to every instance which has been adduced. They are no instances of coalescence but merely of conjunction. If, therefore, the idea of virtue be one formed by coalescence, it is quite singular in its origin. It is either a solitary exception to rule or it has a whole rule to itself.

There is another assumption, one closely akin to that just indicated, to be discovered in all applications of association to account for moral ideas out of pleasant and painful sensations. It is that difference in degree may become in psychology a real difference in kind. The necessity of this assumption in the case under consideration is apparent. The right presents itself to our consciousness as markedly and intrinsically different from the pleasant or the expedient, the wrong as quite unlike the painful or inexpedient. The cognition of right and wrong and the feeling of good or ill desert cannot be confounded by any mind which possesses them with any other cognition or feeling. This fact associationists cannot deny, and consequently

they must account for it consistently with their hypothesis. Accordingly they argue that lower experiences like those of pleasure and pain, expediency and inexpediency, may owing to certain causes in certain cases undergo a process of entire transmutation through association, and acquire the characteristics which distinguish the sense of justice from every other principle of human nature. They assume, in other words, that difference in degree can become difference in kind. It is curious that this assumption, although acted on by the whole school from the commencement, should have been only tacitly accepted and made use of until J. S. Mill gave it a distinct expression. But while it has at length been generalised and formulated it has not yet been proved, nor even attempted to be proved, by any associationist. That important step, which, of course, should have been the very first taken, has somehow been left to the last. It will doubtless be replied that evolutionism has supplied a proof, and freed associationism from the necessity of producing one for itself. But this answer is more plausible than truly satisfactory. For, in the first place, evolutionism in one respect raises a manifest presumption against associationism. The evolutionists are unanimous in declaring vast periods of time necessary for degree to pass into kind, grade into species, whereas the associationists suppose the transmutation to be accomplished in the few years of infancy. According to the former moral perceptions are the results of a process which comprehends countless generations and races of beings and which has continued through an indefinitely vast number of ages; according to the latter they are produced in a very limited time within each individual mind. If evolutionism be true the presumption is that associationism cannot find in the facts to which its attention is confined a proof that experiences of utility can be developed into moral cognitions and emotions. Associationism must prove its own assertions, and by facts and arguments consistent with its own principles. In the second place, the theory of evolution does not of itself necessarily imply that moral intuitions have been developed out of experiences of utility organised and consolidated through a long series of animal and human generations. It is very natural, indeed, to infer that it does, and the two most distinguished of evolutionists, Mr. Spencer and Mr. Darwin, have drawn the inference and constructed ingenious theories which presuppose it. "When we trace back in thought," says Mr. Sidgwick in the first number of this journal, "the series of organisms of which man is the final result, we must—at some point or other, it matters not where—come to a living being (whether called Man or not)

devoid of moral consciousness; and between this point and that at which the moral faculty clearly presents itself, we must suppose a transition-period in which the distinctly moral consciousness is gradually being derived and developed out of more primitive feelings and cognitions. All this seems necessarily involved in the acceptance of Evolution in any form." To me it seems merely a plausible and by no means a really necessary inference. There may have been a continuous process of evolution in psychical capacity from the lowest animal to the highest man, and if so it must have been only at some definite point in that evolution that moral distinctions could be recognised and moral feelings entertained; but if moral distinctions be in themselves quite different from distinctions of expediency and inexpediency, the apprehension of them cannot be said to have been derived out of experiences of expediency and inexpediency merely because these experiences helped to develop intellect to a stage at which it was capable of grasping something higher than themselves. If there be a moral law and moral distinctions which are quite original and peculiar, a long process of evolution may be required before mind can apprehend them, and yet their apprehension may be no product of the process of evolution but a thoroughly original and peculiar act, the reflex of the objective reality. All that evolution can in such a case be legitimately described as doing, is rendering the mind capable of entertaining a new and original idea and the feelings which may accompany it. The new cognition instead of being a prolongation of the experience of pleasure or pain, expediency or inexpediency, may be a perception of a law in the spiritual life other than these,—one to which pleasure and expediency must be subordinated and, if need be, sacrificed. Thirdly, the view of the evolutionists who adopt the associationist theory in substance while greatly modifying it in form is not likely as regards the question under dispute to satisfy those who have rejected the theory of associationism pure and simple. Evolutionists of this class assume that mere experiences of utility can, if sufficient time be allowed them to work in, explain the sense of duty; that what the associationist supposes to take place in each individual during the early years of life can really be effected although only in the course of ages. But those who deny the associationist theory are sure to deny this also and to demand the most rigorous proof of it. Believing utility and duty to be essentially distinct, they cannot be expected to grant that the one can pass into the other by mere length of development or that the one can be traced back to the other merely by being pushed out of sight into dim and distant ages. Their demand for proof that the one ever has passed into the

other can certainly not be met by a reference to the general evidence in favour of evolution. For, evolution, as has been already said, does not necessarily imply the transition in question; and, further, general presumptions in favour of evolution do not prove it to be without limits. It may be generally true and yet have many limits. The distinction between moral and expedient may be one of its limits.

The assumed and, as I believe, erroneous principle we have been considering comes into operation generally at more points than one. It is not only needed where love of pleasure is supposed to pass into love of virtue, but where virtue from being loved as a means comes to be loved disinterestedly for its own sake. This last is a point where the associationist theory signally breaks down. It is inconceivable that any amount of association of virtue and pleasure should end in the love of virtue apart from pleasure. It is especially inconceivable if virtue be in its real nature a life for happiness, since in that case to love it "disinterestedly for its own sake" is to love it as what it is not —is, in other words, a diseased and unnatural love of it, as avarice, to which the associationists so persistently liken it, is a diseased and unnatural love of money. It will be said, however, that this passion of avarice shows at least that desire may be transferred from ends to means, from happiness to money, and that virtue may come to be desired, like money, for its own sake, on the principle of association. But is the nature of the secondary and factitious desire named avarice correctly understood by those who reason thus? It is necessary to consider this question because the whole doctrine of the associationists on the point under examination has no other evidence in its support than their analysis of avarice. They speak vaguely of its being confirmed by "the other secondary desires," but avarice, the "typical instance," as Prof. Bain calls it, is the only instance which they really adduce. It would take considerable ingenuity to show that the other secondary desires supply relevant proofs, and the associationists do not expend their ingenuity in the attempt, but invariably bring forward at once "the typical instance," and after having argued that money from being loved as a means may come to be loved as an end, add "the same thing may be said of many other desires," or some equivalent assertion. Gay led the way. He wonders why philosophers who are fond of postulating original principles and senses have never thought of contending for a *pecuniary* sense, and then explains that "by dropping the intermediate steps between money and happiness, men join money and happiness immediately together, and content themselves with the phantastical pleasure of having it, and make that which

was at first pursued only as a means be to them an end, and what their real happiness or misery consists in." Hartley's way of putting it is much the same: "Since ideas exciting desire are heaped upon money by successive associations perpetually recurring, the desire of it in certain sums and manners, viz., such as have often recurred with the concomitant pleasures, must at last grow stronger than the fainter sensible and intellectual pleasures; so that a child shall prefer a piece of money to many actual gratifications to be enjoyed immediately." I might quote passages to the same effect from Sir James Mackintosh, James Mill, Prof. Bain, &c., but it will be enough to cite these words of J. S. Mill: "Virtue is not the only thing originally a means, and which if it were not a means to anything else, would be and remain indifferent, but which by association with what it is a means to, comes to be desired for itself, and that too with the utmost intensity. What, for example, shall we say of the love of money? There is nothing originally more desirable about money than about any heap of glittering pebbles. Its worth is solely that of the things which it will buy; the desires for other things than itself, which it is a means of gratifying. Yet the love of money is not only one of the strongest moving forces of human life, but money is, in many cases, desired in and for itself; the desire to possess it is often stronger than the desire to use it, and goes on increasing when all the desires which point to ends beyond it, to be compassed by it, are falling off. It may be then said truly, that money is desired not for the sake of an end, but as part of the end. From being a means to happiness, it has come to be itself a principal ingredient of the individual's conception of happiness. The same may be said of the majority of the great objects of human life — power, for example, or fame; except that to each of these there is a certain amount of immediate pleasure annexed, which has at least the semblance of being naturally inherent in them; a thing which cannot be said of money."

Now, what is the leading assumption or assertion in this passage and in the other passages quoted or referred to? It is that avarice has money alone for object, that money is its sole and final end, and not in any form pleasure or happiness with which it was originally connected. It is that the process of association which formed it went on until it became so close as entirely to break. Is this, then, more than a mere assumption? Is it an assertion for which evidence has been produced? The slightest consideration is sufficient to show us that the answer must be in the negative. The assumption has passed down from psychologist to psychologist simply because

uncriticised. To the avaricious man money is not a final object at any period of his life. Instead of associating it less with pleasure when the passion which possesses him is fully formed than when merely forming, his slavery lies in the vastly greater power which such association has over him. He cannot bring himself to use his money rationally as a means to happiness. But why? Simply because he has come to regard it as a sign or symbol of all its possibilities, a complex of a host of imaginary means, and to love it as a sign or symbol of far more power or pleasure than it could ever procure if used rationally as a means, that is if expended once for all in a definite manner. The perversion in avarice is not the substitution of a means for an end, but the substitution of a symbol of many merely possible means for the single actual means which is all that money can be if spent. It has its root in a diseased imagination which at the sight, mention or conception of money starts a multitude of trains of association which tend to make a wise and liberal use of it difficult or impossible. Pleasure is not overlooked or despised, but the pleasures of imagination are preferred to those of reality. There is no such thing as "the love of money for its own sake." It is beyond the power of a rational being to love gold simply as gold, silver as silver. Mere matter cannot of itself be an object of affection to a spirit. The miser loves his hoard because it appears to him as the visible, tangible embodiment of more pleasure than it could ever buy for him. He exaggerates the power that lurks in his glittering and clinking pieces, and loves them for that power, not for their own sake. Money—visible, tangible money—is the means of procuring pleasure, but the love of pleasure is not transferred to visible and tangible matter of any sort, size, or quality: only the pleasure of having the power of procuring comfort, influence, respect, &c., is preferred to the immediate pleasure of using it to procure these things. Were gold and silver demonetised—were a law passed and enforced forbidding their being employed as media of exchange or even bought and sold—it would suffice to make the greatest of misers aware of this in order to cure him completely of his love for them. An instantaneous alteration of his feelings in regard to them would show that he had never loved them irrespective of their value in exchange, never loved them for their own sake. The most avaricious man ceases to find pleasure in a bank-note the moment he is informed on good authority that it has lost its power of purchasing objects of desire. If he had come to "desire it for itself, and that too with the utmost intensity," the information must have left his love for it undiminished, unaffected.

This disposes of the associationist argument from avarice. It is an argument which rests wholly, in my opinion, on an erroneous analysis of the desire.

The laws of association do not explain how virtue, if at first loved merely as a means to happiness, comes subsequently to be loved for its own sake apart from happiness. In fact, were virtue at first loved and practised merely as a means to happiness, the natural effect of the laws of association would be gradually to weaken and obliterate the consciousness of virtue until it altogether disappeared. The laws of association do not separate means from ends by converting means into ends; they do undoubtedly tend to enable us to dispense with thought about means when pursuing ends—to cause whatever has been done merely for the sake of something else to attract ever less and less attention to itself until it wholly fades out of sight. In other words, there is a well-ascertained law of association—one of those which have been termed laws of obliviscence—directly inconsistent with the associationist theory of the origin of moral ideas.

The controversy between associationists and their opponents as to the origin of moral ideas is not, I fear, likely to be soon or easily settled. It has its source in the lowest depth of psychology; it rises out of a radical difference of opinion as to the very nature of consciousness. Is consciousness primarily cognitive or primarily emotive? Is thought the condition of feeling or feeling the condition of thought? Those who answer this question in opposite ways cannot fail to answer also in opposite ways the question as to the origin of moral ideas. If feeling be primary in consciousness, associationism, in supposing two or more feelings which have no moral character when taken separately to produce by their union a moral feeling, which, in its turn, gives rise to a moral idea, is perfectly self-consistent; if feeling necessarily presupposes perception or apprehension, if it is preceded and occasioned by cognition and can only be discriminated in consciousness through cognition, such a supposition cannot possibly be entertained. Now, unfortunately, the prospect of agreement at this point between the two schools is as yet but slight. They do not seem able even to understand each other. What appears to associationists certain looks to their opponents absurd, and *vice versâ*. Mere feelings, and even long and complex processes of mere feeling, are described by the former as undoubted facts; the latter utterly disbelieve that there are or can be such things. Again, does sensation not involve a variety of cognitive elements? Can a single sensation, even of the simplest character, be ever realised in consciousness otherwise

than as an existence, as what is; likewise as one, as *a* sensation; as what I feel, as mine; as here and now, &c.? Can any sensation whatever be experienced except under the conditions of existence, time, number, relation, &c.? Those who in answering this question maintain that mere or absolute sensation, pure experience, is mere or pure absurdity, and that the possibility of sensation and experience is conditioned in the way indicated, seem to sensationalists to be loose thinkers who take the abstractions of intellect for the grounds of its existence and action. To anti-sensationalists, on the other hand, disbelief in certain intellectual conditions necessarily underlying sensation in every form is incomprehensible, and the reasoning which attempts to justify it seems to them strangely irrelevant. Deeper research and continued controversy conducted in a fair and tolerant spirit can alone bring about a mutual understanding. Until that is reached no definite settlement either of the fundamental controversy or of those which proceed from it is to be expected.

The observations contained in this paper require to be confirmed and illustrated by an examination of the chief attempts which have been made to account for the origin of moral ideas on associationist principles,—an examination which time and space forbid our undertaking at present.

R. Flint.

III.—EVOLUTION AND ETHICS.

Mr. Henry Sidgwick's article in the first number of Mind (p. 52) may be taken, if I rightly understand it, as a friendly challenge to those who hold the theory of Evolution, and hold it not as a mere speculation but as a working belief, to explain how far and in what way they find it to bear upon the practical questions of Ethics. I shall here attempt to satisfy this request on some points, in so far as one man speaking for himself can do so. To the best of my knowledge I shall not utter anything new or singular; I shall only set forth, as I believe, that which I hold in common with at least one friend, or have learnt directly or indirectly from others whom I account my masters; at the same time it is hardly possible in these matters to put one's thoughts in a form which even those one most agrees with would choose for themselves, and it seems really the least egotistical course to avoid any pretence of being a spokesman. I shall therefore continue, as I have begun, to

speak as for myself alone. Moreover, I consider that I am not speaking with an enemy in the gate, but as one taking counsel with a friendly fellow-citizen; and my purpose is rather to seek how we may enlarge our common ground of action in the present than to track out the remoter differences which might arise in hypothetical conditions. I shall not even dwell upon the strictly polemic value of the historical method of discussion proper to the theory of Evolution as against divers others whom we should deem our common enemies, although I think it a weapon of great power, and would not be supposed to underrate it in this respect. Thus much it seems needful to put forward by way of limitation and warning.

Mr. Sidgwick's first point is that the theory of Evolution, taken in its general form, "has little or no bearing upon ethics"; in other words, that the establishment, as a matter of natural history, of the conclusion "that the moral faculty is derivative and not original" gives little or no help towards determining a final test for the actual worth of moral judgments. And so far as he carries his remarks on this head I see no reason to differ from them. It is plain that if our various organs and faculties of mind as well as of body do not come ready-made, but have all grown up, on the whole, in one and the same kind of way, the fact that they have so grown up cannot of itself afford the grounds of any comparison or decision as between different outgrowths of the general process. No single thing can be called good or bad, better or worse, simply for having grown like all other things: unless, indeed, we assume beforehand, as some persons do, that a world in which everything has grown is in itself, by some transcendent necessity and in some transcendent sense, bad and not worth living in; but with such persons we are not now concerned. When we come down to the particular topic, however, we find ourselves on a rather different ground. There may be a general presumption in favour of a given faculty being derived, but there is no complete proof until it is shown in what manner it was derived. And this kind of proof, in so far as we can attain or approach to it, is capable of leading to specific inferences of real value. Speaking from the most general point of view, Mr. Sidgwick observes that "surely there can be no reason why we should single out for distrust the enunciations of the moral faculty, merely because it is the outcome of a long process of development." It is probably still needful to mark this point in the first instance; but then there is no need to stop short at such a merely neutral conclusion. We are not content with saying that the faculty came from somewhere; we must seek to under-

stand where it came from, and the nature of the process by which it was developed: and this is the knowledge of which Mr. Darwin has laid the foundations in his work on the *Descent of Man*. Now it seems that when we know this, we have at least some of the materials required as the ground of a rational trust or distrust of the faculty in question. If we can tell with reasonable probability what it is, and how it works, we can also tell with a corresponding probability what its judgments really mean and imply. To that extent, then, we shall be the better able to determine their worth, whatever our standard of worth may be; and this appears to hold good whether in fixing that standard we are guided in any degree by considerations drawn from the theory of evolution, or entirely disregard it. When we look at it historically, the existence of a certain moral sentiment shows that the social forces of which, according to the hypothesis, moral sentiments are the result, have been acting in a certain direction. And if by further and different inquiries we find reason to believe that under normal conditions and taken on a large scale the tendency of those forces is to promote conduct and rules of conduct such as we call *right* or *good*, then we shall also have some reason to conclude that in the absence of special circumstances it is reasonable to trust rather than distrust the "enunciations of the moral faculty." If we are satisfied that the process of development is on the whole towards an end which appears to us as right, then there is at least some scientific presumption in favour of existing morality, such as we find it in the judgment of the average right-minded man, and the burden of proof is on those who assert that in any particular case it requires correction. On this view the existence of a moral rule is *primâ facie* evidence of its validity, subject of course to be outweighed by positive external evidence to the contrary; as, for instance, by showing that it had its origin in an assignable mistake or fallacy, or that since it was established the conditions have materially changed. This is, of course, a rough and general conclusion, and will scarcely help us to a decision when we come to the newer and still unsettled questions of Ethics on which the judgments of right-minded men are found to differ. But it does not seem to me worthless on that account. Anyhow, considerations of this kind have in fact not been despised by pure utilitarians. They have been at some pains to analyse the existing principles of morals which are held binding by civilised men, and to exhibit them as implanted in the individual by frequently repeated experiences and expectations of pleasure and pain. They give a kind of history of the

formation of the moral sense, and aim at showing that the motives which are active in that process are on the whole so determined as to encourage conduct which promotes the happiness of the community and to discourage the contrary. It is worth notice that this view is especially prominent in Grote's *Fragments on Ethical Subjects*—a small but golden book, which I take to be of the first importance as a contribution to the scientific study of morals. Now the history thus presented is just of the same kind as that which is given—I do not mean given as a finished account, but rather assigned as the next problem of research and scientific construction—by the theory of Evolution. What Mr. Darwin and Mr. Herbert Spencer teach us is to extend to the race as a whole the process and the conceptions which the English school of empirical philosophy has already applied, with great success, as far as it went, to the individual. They show us how the life of the race begets, and having begotten them strengthens from generation to generation, the social instincts which the simply psychological moralist assumes as existing in the average man, but cannot explain; and they further show that it is at least a rational question whether the specific working of those instincts, and the specific tendencies thereby produced in each generation, and passed on by tradition to succeeding ones, are not to some extent reinforced by direct physical inheritance. As to this last point, I admit that the determination of the shares borne in the work by the inheritance of tradition, as it may be called, and the inheritance of birth respectively, may be treated as a matter of detail; and I think we are bound to guard against premature affirmations on this head, and still more against underrating the work already done by psychology. There is a real danger of our becoming too prone to call in heredity on all occasions as a kind of *deus ex machinâ*. But in any case the general result stands the same, and may be resumed thus: the theory of Evolution furnishes us with a far more complete account than we had before of the whole genesis of the feelings which go to make up the Ethical Sanction, and leads to an explanation of one important set of the elements concerned, namely the sympathetic and social instincts, of which there was formerly no explanation at all.

It is to be understood that when I spoke above of a right-minded man I assumed with Aristotle that, apart from any question of definition, this (or any of the like forms of speech one may choose) is a fairly intelligible term, standing for a kind of man whom in practice we know where to seek and know quite well when we have found him. But as to the conception of Good or Right in itself, or the proper definition of it, I have so far assumed nothing, save that most people have in fact some such conception.

Let us now turn to those parts of Mr. Sidgwick's discussion which have to do with this conception as affected by the theory of Evolution. His difficulty seems to me to come shortly to this: Evolution is a progress of the species, taken as a whole, with tendencies determined in certain ways, and with what may be called a definite *purpose*,* so that the process appears at any time as if it aimed at realising a certain type, and may conveniently be so described; but how do we know that the type or end aimed at is rationally desirable as being in itself right or good? To this I answer that the demand for an absolute Good is not one which the theory of Evolution pretends to satisfy. Far from so doing, it rather leads one to see that the thing sought for does not exist. The notion of Good is itself secondary and relative, and presupposes an end already set before us. There is not a paramount end which we seek because it is good; there are things which we call good, and seek accordingly, because they make for the paramount end.† The Good of an individual is the preservation or welfare of the individual, and the Good of a species or kind is the preservation or welfare of the kind as a whole. Strictly speaking, we may apply the conception to any finite aggregate whatever, though it is not usual, nor does it seem at present worth while, to extend it in practice beyond the range of organic life. Still less are we limited as to the extent of the kinds or classes we may take within that range; for all living things upon the earth, for instance, the sun's light and heat are good, and contrariwise the various forces tending to make the earth in course of time unfit for life are bad. And one might even say that the dissipation of energy, so far as we can tell at present, is bad for all living things in the universe. But if any one says that it is bad for the universe—which amoumts to saying it is bad absolutely—there I cannot follow him; either he is exercising the anthropomorphic imagination which is excellent in poetry but naught in science, or he is using the words good and bad in a secondary and metaphorical sense.

If then it is further asked, as Mr. Sidgwick in effect seems to ask, how we are to measure the good of one species against the good of another, I answer that they are not commensurable. The good of the cat is (among other things) to catch mice. The good of the mouse is, in like manner, to escape being

* I borrow this use of the word (as not implying design or conscious intention) from my friend Professor Clifford: and I am myself inclined to suggest a corresponding revival of the term Final Cause.

† *Cf.* Spinoza, *Eth.* Part 4, Pref.: Per *bonum* . . intelligam id, quod certo scimus medium esse, ut ad exemplar humanæ naturæ, quod nobis proponimus, magis magisque accedamus: per *malum* autem id, quod certo scimus impedire quo minus idem exemplar referamus.

caught by the cat. There is obviously no method of reconciling these two ends. Man, however, finds it convenient for his own ends that the cat should catch mice, and therefore considers this good in a human sense, and encourages it. But when the scale of the action is changed, and we find a larger kind of cat whose good is to catch animals useful to man, and sometimes men also, then we call its doings evil, and put them down with a strong hand. We fondle the cat and shoot the tiger; but the cat and the mouse, the tiger and the bullock, are, for all I can see, "*primâ facie* on a par in respect of goodness." There is, indeed, a kind of elliptical manner in which one might perhaps call one species better than another, meaning that as a matter of fact it has been, or is likely to be, more successful in compassing its own good. I am disposed to agree with Mr. Sidgwick that such a form of speech is harsh and misleading; for one might find, I suppose, various low parasitic organisms to be *better* in this sense than the higher animals whom they infest.*

Let us pause a moment on these terms *high* and *low* which have thus fallen across our path. By the scheme of Evolution in natural history we are furnished with a certain ordered scale of life (or perhaps I should say several scales) in which (or in one of which) we assign a place with more or less exactness to any given type and call it *higher* or *lower* accordingly. To define the elements of this measurement is the office of biology, not of philosophy; and it may be difficult to make it accurate or even applicable when it is sought to compare terms belonging to distinct and widely divergent series, such as an insect and a vertebrate; but it seems in itself independent of the notion of *good* and the measure of goodness, either in the proper sense or in the doubtful sense just mentioned. There is however an almost constant association of the two kinds of measurement in thought, so that the *higher* creature is conceived as also *better*, and this for the following reasons. First, those variations are found on the whole to be *good* for the individual and the race, that is, to further their welfare, which are in the direction of a *higher* type. The higher animal is more helpful and better able to meet new conditions; as witness the climatic range of man and the animals trained by him;† at least this appears to hold good as between forms that are near enough to be fairly comparable. Next, we men are accustomed to think the higher

* I speak in ignorance and under correction, but it is enough for my purpose that the thing should be conceivable.

† Mr. Sidgwick appears to think otherwise (p. 59): the question, however, is not very material in my view, and moreover is one of pure natural history.

animals good, and to desire their welfare at the expense of the lower ones, inasmuch as they are in mind and body more like ourselves, and are capable of sharing in our sympathies, and to a certain extent even in our social affections; and in part also (but I think by no means principally) because they are more useful to us. But whatever "rising in the scale of existence" may mean, I do not hold it to be the same thing as becoming better, save as experience may ascertain the two processes to coincide.

It seems needful to stop again at a definition. Since I say that good is a relative term, and refers to the preservation or welfare of the thing whose good is considered, it may be asked how I define preservation or welfare. Now the only answer I can give is that all attempts at defining it seem as yet premature, and that until we have fuller knowledge and are more at ease in the appropriate habits of thought, our idea must remain a provisional one. Certainly I am not prepared to suggest at my own risk any amendment to Mr. Darwin's statement of it.* Neither will I be tempted to set it up as an hereditary intuition, though I am persuaded it would serve the turn full as well as many other axioms and intuitions that have made no small stir in philosophy. But, in truth, the provisional notion we have is sufficient on the one hand as a base of more exact inquiry, and on the other hand as a guide to practical conclusions; especially when we bear in mind that the object directly sought at any time must by the nature of the case be a type not widely different from that which exists. There may therefore be a knowledge, rational as far as it goes, of the welfare of any group or race, and of the conditions on which it depends, and an art corresponding to that knowledge. And I should describe Ethics as consisting in a knowledge, or rather a mixed knowledge and art such as we call practical science, that deals in this way with the welfare of mankind. Those habits and conduct are in an ethical sense *right* which further that end; those are *wrong* which hinder it. But inasmuch as the whole of mankind is too large to be profitably considered all at once for any practical purpose, the end of Ethics is practically limited for most purposes to the society where one lives and whereof one is, so to speak, a working unit. Yet the welfare of societies and races with whom one has commonly few or no dealings is admitted as part of the end, and is actively treated as such on special occasions.†

* I may say however that Mr. Sidgwick's verbal criticism (MIND I., p. 58, n.) seems to be just; only the time for verbal criticism is hardly come.

† Two passing remarks may be allowed here. 1.—The welfare of many other animals enters, to some extent, into our developed conception

Such then is the manner in which the doctrine of Evolution appears to me to supply material parts, at least, of the prolegomena to Ethics. But the further question may be asked, Why should the welfare of mankind, and not of this or that man whose action is to be determined, be taken as the paramount end? To this I reply that every science must set out from a first word or fundamental assumption, and this is the very root-word of Ethics. Man wants morality because he is a social animal, and cannot live otherwise than in society; were there not a society paramount to the individual, there could be no ethics. The names themselves bear witness to it; *mores* and ἦθος denote exceedingly complex forms of action and feeling which cannot exist apart from social relations. A solitary being might acquire a want or habit; he could never have laws, customs or rules. The scope and objects of Ethic are altogether social, and it starts from the social assumption. Egoistic Hedonism is in theory conceivable as a method of life, but I refuse to call it a Method of Ethics.* And the problem of the ultimate sanction of Ethics in individual thought, discussed with such admirable wealth of dialectic in sundry parts of Mr. Sidgwick's book, and resumed in his last chapter, is to me not an ethical problem at all. I do not know whether a complete answer can ever be given to it; but I doubt whether the question can strictly be deemed even rational, and account it at best a merely curious one. This fashion of treating the matter will at first sight, perhaps, appear new and overbold. But the same assumption is made, though less openly, by the "old-fashioned Utilitarianism,"† when it is said (see Mr. Sidgwick's article, MIND, No. I, p. 60) that "we have no rational ground for preferring" the happiness of this or that individual "to any other happiness." For, when one looks closer into this, it includes more than the simple proposition that A has no rational ground for preferring

of the End, the domestic ones being indeed a real though subordinate part of our community, and others being associated with ourselves in different degrees by likeness and sympathy: but this would be too long to work out now. 2.—Politics, at least on the practical side, must in any view be an offshoot of Ethics. But I should like to revive the large classical sense of the word, so that the theoretical part of Politics might cover all that is now called by the barbarous name of Sociology.

* Even habitual law-breakers are not egoists, but are banded against mankind in a crooked bond of their own, and governed by a sort of perverted morality. The diseased growths of the body politic, as of the body natural, have still the characters of organic life.

† For a yet older witness I may cite the first great poet of Christendom—

Ond' egli ancora: Or di': sarebbe il peggio
Per l'uomo in terra, se non fosse cive?
Sì, rispos' io; *e quì ragion non chieggio.* Dante, Par. VIII. 115.

the happiness of B to the happiness of C. That is not enough; we want something much greater and harder, namely that A should not prefer his own happiness to the happiness of either B or C; and when we say that he has no rational ground for so doing we renounce the self-regarding point of view, and speak in the name of the commonwealth, and with the judgment of a collective, not an individual, reason. The Rule of Equity and Rule of Benevolence adopted by Mr. Sidgwick as axioms present themselves to me rather as corollaries of the one fundamental axiom. Again, it is sufficiently clear that the moral sentiment and the moral sanction, such as they exist in fact, are in their nature social and work towards a social end; for the exposition of this I must again refer to Grote's posthumous essays. "The safety, happiness and welfare of the society" are found in practice, as Grote says, to be aimed at, skilfully or unskilfully, by the moral rules of all peoples. How this came to pass is doubtless a question of great interest; and here again the doctrine of Evolution fitly steps in to complete our historical prolegomena. Filling up a blank in knowledge which no purely ethical speculations could fill, it shows us decisively that the social sentiment of morality, such as we now find it, is itself the offspring of social life, and could have had no being otherwise.

But again, when we have assumed the common weal as the End or Final Cause of Ethics, how are we to determine what conduces to it? There seems to be an impression that some followers of Mr. Darwin are eager to forsake the slow and toilsome ways of experience, and settle all disputed points by deduction from the theory of Evolution. For my own part I must say plainly, though perhaps it is already contained in what has been said above, that I should regard any such attempt as altogether mistaken. I think, as at present advised, that Mr. Darwin's test of Welfare and Bentham's test of Happiness, different as they are in conception, yet so far coincide for most or all purposes of immediate action that there need be no break between them in practice, and the method of dealing with practical questions remains very much the same. Thus I have no hesitation in accepting Mr. Sidgwick's account of the "Unconscious Utilitarianism" of common sense (*Methods of Ethics*, Bk. 4, Ch. 3) with little or no change beyond what is suggested by Mr. Sidgwick himself in his note at the end of the chapter; I should say that not Happiness but Welfare is the dimly descried goal of common sense, and the quality of conduct that tells in the long run is not Mr. Sidgwick's "Felicific Quality," but something slightly different which might be called *welfaresomeness;*

but I quite agree with him that the discrepancy may for present purposes be neglected. Again, almost all Mr. Sidgwick says in the two following chapters on the relation of theoretical ethics to existing Positive Morality seems to me both true and opportune, and I can welcome it without reserve. I see no reason to suppose that empirical utilitarianism, or something only verbally distinguishable from it, will be superseded as a working method in either Ethics or Politics within any time we can reasonably look forward to. Moreover I hold that the question put by Mr. Sidgwick at the end of his paper, namely, what is to be done when reasoned conclusions fall out with unreasoned (I will not say unreasoning) sentiment, does not admit of any formal answer. However, I will try to set down some of my own general notions on the matter. The first impression of a right-minded man's ethical judgment on a given case is always of some worth, and often of great worth. That worth consists in its being representative; that is, the man's judgment is evidence of the existence and contents of an established rule of morality; for we presume that other right-minded men will judge likewise. The strength of this evidence will of course vary; there are elementary cases where it is all but conclusive, and doubtful cases where it fails, in other words, where in fact no rule exists; yet in the case where it fails, the judgment still has a certain representative worth. For even then it is hardly ever solitary, but stands for one of the social tendencies among which the final choice is to lie; though it cannot give us a rule, it can show us out of what kind of materials a rule is being made. I have already said that on the Evolution-hypothesis there is a presumption in favour of existing moral rules; and I may add that in a civilised and free community like our own that presumption is exceedingly strong. We can have little sympathy, for instance, with a man who professes to be assured by his own conscience that the institution of property is immoral, if he acts upon the bidding of his conscience and suffers the ordinary consequences. In really doubtful cases, on the other hand, I should say that the unconscious process of intuitive moral judgment would for the most part be a safer guide to an ordinary man than any process of explicit reasoning;* but this depends after all on the man's individual temper and character, and the nature of the particular case. Explicit reasoning is liable to be biassed by desire; but a man of trained reason and controlled will may guard against this; and in some cases, again, desire may be

* I note that Mr. Sidgwick recognises (*Methods of Ethics*, p. 202) a "tact or trained instinct" in ethics considered as the Art of Life, analogous to the instinctive skilled judgment of the expert in a special art.

absent or evenly balanced. But the whole topic is too special and intricate to be now pursued. The main thing to remember, as I would submit, is that there are only two kinds of difficult cases; either one can find no rule that is applicable, or one cannot accept the rule that exists; and both kinds are in practice quite exceptional. I think one seldom performs a conscious calculation with reference to happiness or welfare except on the sort of occasions where it might be said to be morally wrong to choose without deliberation, but none of the alternative courses of action can be called wrong in a moral sense after it has been deliberately chosen.

There is one last word to say concerning the supposed claim of the doctrine of Evolution to reconcile the conflict between the Intuitional and the Utilitarian schools: we are expected, it would seem, to produce Mr. Darwin as a *deus ex machinâ* in the strictly dramatic and classical sense. Now there are several kinds of reconciliation. Opposing parties are, generally speaking, not reconciled except by some sort of compromise: and to have a clear understanding of the reconciliation one must know on what terms the compromise is made. They may be terms of equal giving and taking, or nearly so. But the man who agrees with his adversary quickly while he is in the way may no less be said to be reconciled with him, and the friend or arbiter who advises this course to effect a reconciliation. And it appears to me (as well as to Mr. Sidgwick) to be rather in this fashion, if at all, that the parties to a long and stubborn contest are to be reconciled in this case. For the doctrine of Evolution, while it shows that the criticisms of Intuitional moralists on the standing expositions of the Utilitarian system are to some extent well founded, at the same time destroys the foundation of Intuitional systems more utterly than Utilitarian criticism had even attempted to do. If Bentham is right, Intuitionists are wrong; if Mr. Darwin is right, they must be wrong. The Intuitionist denies that moral sentiment can be accounted for by the materials given in the experience of the individual; but he denies it only for the sake of establishing a scheme of absolute and immutable morality. What comfort shall he take in being told that his first position is indeed in a manner right, that manner being wholly different from what he supposed, when in the same breath he is told that his absolute and immutable morality is immutably and absolutely a chimera? The Utilitarian, again, strives to find the law of the common weal in the growth and motives of the single mind: shall he be discomfited, or shall he not the more rejoice, when a wider insight summons him to behold the stars in their courses fighting for him, and the power he sought even at hand, unperceived but irresistible, the fruit of man's common

life and his heritage from all generations? There is no reconciliation between the right and the wrong way of search, between the path of patient experience and the flight of unwarranted assumption. The theory of Evolution has come to do great things in the field of mental philosophy, as well as in that of natural philosophy—a term English workers have been laughed to scorn for retaining, and that is now seen to be more true than ever: but this new learning that has sprung forth under our eyes, and for the most part, as our children will be proud to think, under the hands of living Englishmen, has come not to destroy but to fulfil the work of those English leaders of thought who were foremost in proclaiming that there is but one reason and one rule of truth for matter and spirit, for man and the world, for the greatest things and the least.

FREDERICK POLLOCK.

IV.—THE ORIGINAL INTENTION OF COLLECTIVE AND ABSTRACT TERMS.

Is it not a most striking illustration of the power which language can exercise even on the most vigorous and independent minds, when we see how Mill had persuaded himself that most metaphysical difficulties inherent in the conceptions of Matter and Mind could be removed by declaring* that Matter was nothing but the "permanent possibility of sensation," Mind nothing but the "permanent possibility of feeling?" There is a certain want of clearness in thus expressing the opposition between the Ego or Mind and the Non-Ego or Matter, and I doubt if many will approve the use which Mill makes of the words sensation and feeling, restricting the former to a passive, the latter to an active sense. However, a philosopher who modifies thought has a right to modify language, and we have only to remember that Mill, in his dialect, uses the expression "possibility of sensation," as applied to the Non-Ego, in the sense of the possibility of being the object of sensations; while "possibility of feeling," as applied to the Ego, is intended to convey the possibility of being the subject of feelings.

But what is of much greater consequence is this, that Mill should have imagined he could eliminate, or at least sublimate, the idea of substance, both in the Ego and the Non-Ego, by using an abstract noun, possibility, instead of a concrete noun, the possible, or, as we used to say in our own, half classical, half mediæval dialect, the cause, the substance, the subject.

* *Examination of Hamilton's Philosophy*, pp. 198, 206.

What is the nature of such words as possibility? They clearly express a quality, and therefore a quality of something. When we speak of a thing as feasible, we mean that it can be done; when we say it is destructible, we mean that it can be destroyed. Afterwards, if we want to speak of many things being feasible or destructible, our language enables us to form new substantives from these adjectives, and to speak of the feasibleness, the destructibility, the possibility of things. Language will even allow us to go a step further, and to say, for instance, there is a possibility of something being done, but it is here that language begins to react on thought and tempts us to speak of possibilities, as if they were things by themselves, and different from the things which are possible.

One of the best known instances of what I call philosophical mythology is the word faculty. From *facere*, to do, was formed *facilis*, easy to do, or easy to be done; e.g. *res factu facilis*, a thing easy to be done; *facilis ascensus*, an easy ascent. *Facilis* means also ready, e.g. *facilis ad dicendum*, ready or quick to speak. From this adjective we have *facilitas*, the quality of being easy, also the quality of being ready. Besides *facilitas*, we also find *facultas*, a word generally represented as a contraction of *facil(i)tas*, but which may be derived directly from the old Latin *facul*. *Facultas* means chiefly the power of doing, e.g. *facultas pariendi;* then the means of doing, supply, resources. In modern languages, however, this word has assumed a much wider development. We speak of the faculty of hearing, the faculty of perceiving, imagining, remembering, reasoning; we speak of the faculties of the mind, and we at last divide these faculties, place them side by side as independent powers, often forgetting that all the time they can claim no subjectivity whatever, that they are no more than qualities of the same subject, and that all we really mean when we say that humanity is endowed with the faculties of seeing, remembering, imagining and reasoning, is that every man can see, remember, imagine, reason, &c.

It is curious that the very school which has always protested most strongly against the abuse of these abstract nouns, which has waged war to the knife against the faculties of the mind, though not always to the advantage of a clear and systematic treatment of psychology, should in metaphysics fall into this very trap. We can imagine philosophers denying altogether the reality of any such thing as substance; we can understand why Mill looks upon that category simply as the result of custom, not as a *sine quâ non* of human thought. But whatever the origin of our category of substance may be, it is through it and with it alone that we can conceive quality.

A quality is inconceivable without reference to a substance, and however much that original coherence may be forgotten, we always find it is there, whenever we go back to the deepest foundation of our intellectual fabric. We may speak of possibilities, we may trust in possibilities, we may be even frightened by possibilities, but if we look more closely, what we trust in and what we are frightened by are always things possible.

If therefore Mill and his followers imagine that by defining Matter as the permanent possibility of sensation, and Mind as the permanent possibility of feeling, they have removed the difficulty of Kant's *Ding an sich*, they are mistaken. Their possibility of sensation, if properly analysed, means things or substances which can become objects of sensation; their possibility of feeling means things or substances which can become subjects of sensation.

However we may fight against the necessities of our reason, reason has its revenge. It is, for instance, only another attempt at avoiding the admission of something substantial in the Ego, which leads Mill and his followers* to define Mind as a series or a succession of feelings. What are series or succession but the germs of collective words, many of which develop into abstract nouns? A series or a succession means things succeeding each other, and if these things are feelings, then feeling again is what might be called an adjectival substantive, expressing a quality, *status*, or act of somebody. Leave out that somebody, that substance, that subject, that *x*, and our mind refuses to act, as Mill has been honest enough to admit himself. For, as he says, (p. 212):—

"The thread of consciousness which composes the mind's phenomenal life [another *alias* for the Ego as a substance] consists not only of present sensations, but likewise in part, of memories

* M. Taine in his classical work, *De l'Intelligence*, Vol. I, p. 378, expresses the same views in even more determined language: "Le moi n'est lui-même qu'une entité verbale et un fantôme métaphysique. Ce quelque chose d'intime dont les facultés étaient les différents aspects, disparaît avec elles; on voit s'évanouir et rentrer dans la région des mots la substance une, permanente, distincte des événements. Il ne reste de nous que nos événements, sensations, images, souvenirs, idées, résolutions: ce sont eux qui constituent notre être; et l'analyse de nos jugements les plus élémentaires montre, en effet, que notre moi n'a pas d'autres éléments." What is the meaning of *nos événements*, if not *événements de nous*, and if these *événements* are something real, might we not turn M. Taine's illustration (I. 385), that one cannot hang any but a painted chain on a painted hook, against him by saying that one cannot hang a real series of *événements, sensations, images, souvenirs, idées, résolutions*, on a painted *Moi?*

and expectations. Now what are these? In themselves, they are present feelings, that is of present consciousness, and in that respect not distinguished from sensations. They all, moreover, resemble some given sensations or feelings, of which we have previously had experience. But they are attended with the peculiarity, that each of them involves a belief in more than its own present existence. A sensation involves only this: but a remembrance of sensation, even if not referred to any particular date, involves the suggestion and belief that a sensation, of which it is a copy or representation, actually existed in the past: and an expectation involves the belief, more or less positive, that a sensation or other feeling to which it directly refers, will exist in the future. Nor can the phænomena involved in these two states of consciousness be adequately expressed, without saying that the belief they include is, that I myself formerly had, or that I myself, and no other, shall hereafter have, the sensations remembered or expected. The fact believed is, that the sensations did actually form, or will hereafter form, part of the self-same series of states, or thread of consciousness, of which the remembrance or expectation of these sensations is the part now present. If, therefore, we speak of the Mind as a series of feelings, we are obliged to complete the statement by calling it a series of feelings which is aware of itself as past and future: and we are reduced to the alternative of believing that the Mind, or Ego, is something different from any series of feelings, and possibilities of them, or of accepting the paradox, that something which *ex hypothesi* is but a series of feelings, can be aware of itself as a series."

Nothing can be more frank and honest; only, instead of saying with Mill that we are here "face to face with that final inexplicability, at which we inevitably arrive when we read ultimate facts;" and instead of comforting ourselves with saying, that one mode of stating it only appears more incomprehensible than another, because the whole of human language is accommodated to the one, and is so incongruous with the other that it cannot be expressed in any terms which do not deny its truth,—might it not have been better, if Mill had examined his own language more closely, and asked himself what could be meant by a series, a thread, a succession? A succession of feelings, no doubt, cannot be said or thought to be aware of itself as past or future, but an Ego, a Subject, an *x*, or whatever you like to call it, of which this succession, *i.e.*, these succeeding feelings are qualities or attributes, may well be thought and said to retain a feeling, not for one moment only, but for a longer or shorter time; and the same subject may also, by means of the same retentive nature of former feelings, and by that very law of association which Mill has so fully illustrated, expect one feeling to arise again, whenever

another feeling, with which it was frequently connected, has arisen.

Language, as I have often said, always revenges herself whenever we do violence to her, or whenever we forget her antecedents. At first sight a series, a succession, a thread may seem a very different linguistic expedient from the termination *tas* which we found in *facultas*, and which is used to form abstract nouns. Yet what was the original purport of such words as *juven-tas*, if not a series, a succession, a class of *juvenes*, and of all things belonging to them? What was *posteritas*, if not a series of *posteri*? What was *civitas*, if not a number of *cives*? The growth of meaning in the derivative *tas*, though long forgotten in Latin, Greek and Sanskrit, can still be watched, if we have but eyes for the secret cunning of languages. Taking *juventas* or *juventus* in its original meaning, succession, thread, class of young men, the Romans could well form such sentences, as *cum omnis juventas, omnes etiam gravioris ætatis eo convenerant*, when the whole youth and also all of maturer age were come together. *Princeps juventutis* would be the chief of their youth, *i.e.* of all the young men. *Juventas pugnare debet* would mean the young men must fight; *juventas facile decipitur*, young men are easily deceived, or *credula juventus*, credulous youth. Now in credulous youth, the numerical slowly glides into the more abstract meaning, and so we go on to *tempus juventutis*, the time of youth; *gaudia juventutis*, the pleasures of youth; *robur in juventate*, the strength in young men, or the strength of youth, till at length the abstract conception preponderates; *juventus* becomes all that belongs to youth, and is at last endowed with a new substantival form in the name of the goddess *Juventas*, to whom Lucullus dedicated a temple in the Circus Maximus.

To us the formation of abstract nouns, such as *facul-tas* from *facul*, *juventas* from *juven-is* is so familiar that we hardly think how, at some time or other, the composition of *facul* with what we call the suffix *tas*, or *tâti*, must have been an individual act, performed with a definite purpose. That act took place at a time which escapes chronological measurement; but whenever it took place it must have been a rational act. As long as we know Latin it possesses the suffix *tas*, *tâti-s*; as long as we know Greek it possesses the suffix της, τητ-ος; as long as we know Sanskrit it possesses the suffix *tâti-s*. Therefore, long before Homer, long before the Veda, long before 1500 B.C., *tâti* had become what we call a suffix, *i.e.*, a purely formal element. In 1500 B.C., Sanskrit must have been separated from Greek and Latin for a very long period

of time, for the Sanskrit of that time is less primitive in several respects than the Latin of Cicero. Therefore, not only would it be impossible to represent Latin as derived from Sanskrit, such as we know it in the Veda, but it will be necessary to admit that on some points Sanskrit in 1500 B.C. had diverged more from the common Aryan type than Latin had in the time of Cicero. True, no method of calculation will enable us to fix the time when Sanskrit and Latin separated, but I believe that, if on other than linguistic evidence that date were fixed at 10,000 B.C., the student of language would have no difficulty in accepting it. At that remote period the word *tâti*, whatever its origin may have been, must have been used so frequently already as to have assumed a merely formative and formal character, for it is in that formal character alone that we find it in Sanskrit, Greek and Latin. Before, however, such a suffix as *tâti* became purely formal it must have had an independent and substantial existence. It must have had a meaning, and that meaning, if we could discover it, would reveal to us the first truly historical germ of what we now call the conception of collective and abstract nouns. I am not myself a great believer in that microscopic analysis of grammatical suffixes and terminations with which Bopp and some of his followers have made us familiar. If I am told as a fact that *thas*, the termination of the second person plural in Sanskrit, the Latin *tis*, was originally a composition of *tva-tvi*, thou and thou, what is stated as a fact seems to me to deserve at the utmost the name of likelihood, and even likelihood in such cases seems often to dwindle down to mere possibility. Still the principle remains that, whatever is now purely formal in language, must at some time or other have been substantial, though we may admit our inability to trace all formal elements, such as we find them, back to the earlier stratum of language whence they arose. We can easily read the origin of such suffixes in English as *ship* (friendship), *dom* (freedom), *less* (useless), *full* (useful); but when we come to *ness* (ful-ness), or *ish* (fool-ish), we cannot dig deep enough to reach the soil from which they drew their life.

With regard to the suffix *tâti*, Latin *tas*, *tatis*, English *ty*, one of the oldest Aryan suffixes for forming collective, and afterwards abstract nouns, I shall not venture to speak positively as to its original purport. It has been explained by a very distinguished scholar as a combination of two suffixes *tâ* and *ti*, which are used by themselves to form abstract nouns, and the origin of which would probably be referred to a demonstrative pronominal base. But it is curious, to say no more, that Indian grammarians should have derived their suffix *tâti*

from a root *tan*, to stretch, to extend, thus giving to this abstract suffix that very meaning, viz., stretching, succession, thread, series, which modern metaphysicians now wish to substitute for the collective and abstract nouns in *ty*. It is true, no doubt, that the correct derivative from *tan*, to stretch, would be in Sanskrit *tatis*, with a short *a*, which means a row, a series, a mass, or τασις in Greek, which means tension; but the formation of so ancient a word goes back to a period far beyond the reach of the grammatical laws of Sanskrit or Greek, and no serious objection to the etymology proposed by native scholars could be raised on that ground.

Without, however, ascribing to that etymology more authority than it deserves, I thought it might be useful to mention it as likely to be of interest to metaphysicians. If those who follow Mill and share with him his aversion of abstract nouns believe that by using such words as succession, or thread of sensations, they have escaped from the dangerous spell of words in *ty*, they will see that the step from thread, series, succession of sensations to sensibility, or from a collective to an abstract noun, is not so great as they imagine. These words require a peg, and not a painted peg, to hang them on. The expressions, thread, series, succession of sensations hang as much in the air as sensibility. To say that our Mind is the permanent possibility of feeling, and that the Ego is but a series of feelings, are both but new translations, different ways of saying that our mind possesses feeling, or, as we used to say, has the faculty of feeling. Nay, as long as we bear in mind the original purport of collective and abstract nouns in *ty*, it would seem more straightforward and more English to say that the Mind possesses the faculty of feeling than to say that what we formerly used to call Mind or Ego, is "a series of feelings, aware of itself as a series of feelings."

F. Max Müller.

V.—PHILOSOPHY AND SCIENCE.

III.—As regards Ontology.

The question whether philosophy is more than merely analytical brings us for the first time into serious contact with the claims and pretensions of Ontology. The ontological

question may be variously stated. Is it possible to transcend the distinction between the subjective and objective aspects, resolving them into something which is neither of them actually, and yet which is both of them potentially? Or again, Is it possible to exhibit the genesis of the two aspects if not from a common source, yet of either of them from the other? Or again, Can we hope to assign a reason why there should be consciousness and existence at all, or why there should be consciousness and existence only?

These are statements of what is properly and strictly the problem of Ontology. An ontological system is one which professes to furnish and demonstrate an affirmative answer to any one of these questions. But if we look at the various systems of philosophy which are synthetic and constructive as well as analytic, we shall see that they envisage these questions with very varying degrees of distinctness; and that, even where they envisage the questions distinctly, they yet contain much which, though professedly constructive and not analytic, still does not go beyond the ultimate duality of subjective and objective aspects, distinct but inseparable, given by reflection. Let us enumerate the explanations, the ultimate constructive principles, given by some of these systems. Such constructive principles are:

The Very One, τὸ αὐτοέν, of Neo-Platonism,
The Triune God, of Christian Theology,*
Leibniz's Primitive Productive Substance,
Spinoza's Infinite Substance consisting of Infinite Attributes,
Schelling's Absolute Identity of Subject and Object,
Hegel's Identification of Contradictories,
Schopenhauer's Will as Thing-in-itself,
Mr. Herbert Spencer's Unknowable.

These are all produced as solutions in constructive philosophical speculations, widely different from each other as they are in other respects, for instance, in respect of how much, in detail, the several systems they belong to profess to have achieved; or again, from a theological point of view. One and all they go to the very limit of the human tether; they embrace *everything*. Even Mr. Spencer's system, which knows that nothing can be known of the dark foundations, is unlimited knowledge in respect of range. It knows so far, and *all* beyond is known to be unknowable. Hegel's system, on the other hand, knows so far, and knows that *all* beyond is knowable too, for its inmost source of being is known.

It is very difficult to pronounce whether the authors of

* Father Kleutgen, *Die Philosophie der Vorzeit.* Vol. 2. § 1018.

systems such as these suppose themselves to have transcended the duality of subject and object, for they imagine something as transcending it, and by this very act of imagining make subjective that transcendent something. The truth is, that they have not grasped, or at least have not stated, in all its bearings, this property of Reflection, namely, that *all* its objects are subjective as well as objective; either they have not repeated often enough the process of reflecting again on their own proceeding, or else they have not thought it worth while to explain the *rationale* of it to their readers. At the same time they all of them go, as remarked above, to the very end of the matter.

We see, then, two things: (1) constructive systems have busied mankind in all ages; (2) the ontological part has not been clearly marked out from the remaining parts of those systems, and thus Ontology has not been distinguished from a possibly legitimate philosophical construction.

The necessity for leaving a place open for philosophical construction, distinguished from Ontology, is shown by the facts of Reflection. Consciousness (I mean always as it exists in an individual) stands as it were at a point in space, an infinite space, which is Existence. But consciousness is as infinite as the space. Otherwise, how could it imagine the space as infinite? But consciousness is endowed with faculties, as it is called, that is, works in certain determinate modes: now everything determinate is limited by its determination,—there may be other modes which are to this consciousness indeterminate, and in that sense unknown. The world as given by our determinate modes of consciousness is to us the actual world in which we live. The world as it would be given by other modes is indeterminate existence, indeterminate to us but determinate to those other modes of consciousness, being their actual world. There is then, beside our determinate world, a world indeterminate to us, but *possible* if there should be other modes of consciousness than ours, that is, *possible* to our thought since we imagine its condition, and *actual* to those other modes, if *they* are actually existing. It is this possible and *to us* indeterminate world which is the field of constructive philosophy as distinguished from analytic philosophy on the one hand and from Ontology on the other. It is a world included within the grasp of Reflection, but excluded from that of Direct Consciousness.

The constructive branch of philosophy, then, having this field assigned to it by the Method of Reflection, is not only one which has been pursued by philosophers, but it is a necessary and legitimate branch of inquiry. The direction

in which its problems and their solutions (if any) will lie, and the point of its connection with the analytic branch, are evident. How much it will contain, what answers are possible to its questions, and even the particular shape of these questions, are points which need not here be dwelt on. One thing, however, is too important to be passed over. The constructive branch of philosophy cannot be pursued except in connection with the analytic branch. Otherwise it would not be philosophy at all,—for it would not be subjective and it would not be ultimate. But it does not necessarily follow that its problems must take an ontological shape, that philosophers should propose to transcend the distinction of subjective and objective aspects, and to define the supposed underlying Unity. We have got two analyses, a subjective and an objective, to combine. The elements given by these analyses may be hypothetically constructed and reconstructed in various ways. Again, the modes of consciousness known to us are not all that are possible, there may be conscious beings with senses, emotions and intellectual endowments, widely different from, as well as more numerous and more powerful than, our own. There is a vast field of the unknown to traverse, and all this field lies, with all its possibilities, before the constructive branch of philosophy. Science is of the world as our human modes of consciousness reveal it to us; it is a knowledge of the laws of objective existence as that existence appears to man; it is the history of the universe expressed in general terms, in concepts not in percepts. Still it does not transcend what has or what may have happened, what can happen or will happen, as conceivable by ourselves. But a fourth dimension of metaphysical or unfigured space is a problem of constructive philosophy. It is an object not unknowable, but unknown; we know the *sort* of thing it must be, at the same time as we know that we cannot construe the notion of it to ourselves, or bring it into harmony with our actual space of three dimensions, which seems to include all possible directions of spatial extension.

Or we may state the position of the constructive branch of philosophy as follows. There cannot be anything beyond existence, that is not existence; it is a contradiction in terms; or, there cannot be an existence that has not a subjective aspect, for to *be* is to have a subjective aspect, in some consciousness or other. But there may be existences, or existent worlds, very different from that one which is the world of our consciousness; and we may imagine such worlds, analogous to our own, by supposing changes in regard to the ultimate elements of our own subjective analysis, which may

be done either by the hypothesis of different but analogous Feelings, or by that of a different combination of the subjective elements themselves. There would thus be new worlds for new conscious beings. And our own world would appear as one of a series or group of analogous worlds, yet without in any way transcending phenomenal existence, or the duality of subjective and objective aspects, distinct but inseparable. We may farther suppose this series or group graduated so as to consist of members infinitesimally different from each other, yet none of which would be actual to any conscious beings but its own, however near it stood to those most like it in the group. And this whole hypothetical group of phenomenal worlds would be the field of the constructive branch of philosophy.

Again we may say that the problems of the constructive branch of philosophy will include, but possibly by giving them quite different shapes from what they have hitherto appeared under, the old questions of God and Immortality; and generally of the *Why*, the *Whence*, and the *Whither*, as distinguished from the *What* and the *How*, of our actual world. I exclude the question of Freedom, that appearing to me to be not a problem, but a puzzle which is within the competence of the analytic branch; though it is not impossible that further light should be thrown upon it from the constructive. But if we take our actual world as a whole, limited by the worlds of the hypothetical group, then the *How* of our actual world becomes a question of its connection with those worlds, and consequently a question for the constructive branch of philosophy.

Whatever light might be thrown upon the nature of our own world by imaginations directed to the hypothetical group, the insight gained would not be science; no laws of our own world would be thereby discovered or proved; for the hypotheses would not be verifiable. Still there might be an advantage to science in suggestions which might be thus afforded for framing other scientific hypotheses relating to our own world, hypotheses which themselves, when framed, would be capable of verification and therefore scientific. For instance, the hypothesis of an universal Ether is a scientific hypothesis, capable of verification by means of its consequences; but it is also an hypothesis which we may easily imagine to have been suggested, in the first instance, by speculations on hypothetical worlds or their relations to our own. And supposing that to have been the case, we should then have an instance of what I intend by saying that hypotheses in philosophy, not themselves verifiable, may conceivably

suggest hypotheses in science which are or may become so. Here is the link which connects the constructive branch of philosophy with science in its strict signification; and it is clear I think that, though indirect, it is still not to be altogether disregarded, even from a scientific point of view.

Widely different, however, from what is here intended as the constructive branch of philosophy are theories which bear a similar relation to some particular branch of science; such theories as for instance that of G. Th. Fechner in his *Zend-avesta* (1851), to the effect that the whole universe is animated, and every sun and planet a being endowed with an individual life and consciousness; or that lately put forward in *The Unseen Universe*, which maintains the existence of an infinite series of worlds composed of finer matter than that out of which the visible universe is framed. One is a physiologist's, the other a physicist's imagination.* Such theories belong to a constructive branch not of philosophy but of science. They build an extension, or they remodel the structure, of the physical world as we see it and know it; but they build or remodel with the old stones, or with new ones of similar quality. Philosophy in remodelling would transmute the very substance of the stones as it were into diamond or opal. I am very far from denying the value of such scientific speculations; I welcome and applaud them. At the same time it is necessary to keep them distinct from analogous imaginations of philosophy in its constructive branch; and, above all, not to use them as supports of a ready-made theology, which is thereby made to sit in the chair of philosophy.

It is at this point that I find myself opposed to those who hold the fourth of the views concerning philosophy enumerated in my first paper (MIND, No. I. p. 68), a view recently and very powerfully advocated by Mr. Lewes. The field which I have vindicated as belonging to a legitimate branch of philosophy, the constructive branch, is, if I mistake not, that described by Mr. Lewes as the region of "the supra-sensible" and "the metempirical," and excluded, in the character of an "unexplored remainder," not only from science but also from philosophy (*Problems of Life and Mind*, Vol. I. pp. 39-46, 177, 189, 194-5). At the last of the places cited, Mr. Lewes mentions two senses of the word Object. "We apply the term Object to the Not-self. This Not-self may be either the objective aspect of the world felt and thought, *i.e.*, of the External in actual and virtual relation to Sentience; or the

* See also Fechner's *Einige Ideen zur Schöpfungs- und Entwickelungsgeschichte der Organismen* (1873), in which a certain philosophical character is more pronounced.

universe of existence, conceived in its totality, including that smaller section of it which is grouped by a Subject." And then, speaking of the "Universe considered as the totality of Existence," under this aspect he says, "the Object is not the *other side* of the Subject, but the *larger circle* which includes it."

On this I would ask,—This interspace between the including and included circles,—what is it? Is it knowable or unknowable? If unknowable, how do we know that it exists? If knowable at all, why not included in philosophy?

There is one way of understanding the expression "larger circle," in which it does not conflict with the expression "other side," here contrasted with it. Namely, when the universe considered as the totality of existence is distinguished into its two aspects, the Object and the Subject, this double-aspected Whole may be taken as the *larger circle* including either of the two aspects, since it includes both Object and Subject; but then this same double-aspected Whole is also, in the present act of reflection, the Object of our imagination; it is the *other side* of our Subject. Reflection continually distinguishes, equates and combines the two aspects. And in this sense the universe, the totality of existence, is the object of philosophy, being the object of Reflection. It is from the point of view of direct consciousness that the universe is *not* the other side of the Subject *but* the larger circle which includes it, since it includes, in Mr. Lewes's words, "that smaller section of it which is grouped by a Subject."

There is then, according to Mr. Lewes, and from the direct consciousness point of view, an objective existence which has no subjective counterpart, is not "grouped by a Subject." This part of existence I understand Mr. Lewes to exclude from philosophy under the names "supra-sensible" and "metempirical." "I am far from implying," says Mr. Lewes, "that a Supra-sensible does not exist. I only affirm that it does not exist *for us* as an object of positive knowledge, though forced upon us as a negative conception" (I. p. 252). He would "divide the field of Speculation into the Sensible World, the Extra-sensible World and the Supra-sensible World: a division corresponding with our previous distribution of positive, speculative and metempirical" (p. 253). And after speaking at length of the two first of these, as comprising all that is accessible to experience, and consequently all that is admissible in science, he proceeds: "There is, however, a third division claimed by Theology and Metempirics, the region of the Supra-sensible, or

Metempirical, which is closed indeed against the Method of Science, but is open to Faith and Intellectual Intuition" (p. 264).

I, on the other hand, from the reflection point of view, would include this region in philosophy, though excluding it from science; not because it is "open to faith and intellectual intuition," but because it is embraced by reflection. Unless it were embraced by reflection, I do not see how it could be examined at all, even to be rejected. To examine it at all is to include it in philosophy; the examination may result in its exclusion from science, but not in its exclusion from philosophy, for that would stultify the examination itself. Within philosophy, accordingly, I would assign this region a place as its constructive branch, making this branch of philosophy wholly dependent upon the results of the analytical branch. To include it in philosophy, at least as a possible branch, is to give a meaning to Wolff's definition of philosophy, "*Scientia possibilium quatenus esse possunt*" (*Logica. Disc. Prælim.* § 29). To exclude it is to leave unattempted the very questions which most torment us, and for the hope of solving which in great measure philosophy itself is undertaken. Indeed, for most people, philosophy means the constructive branch, means the solution of the questions Why, Whence, Whither, of Existence, and means nothing else. The purely analytical branch of philosophy has for most people no interest and no significance.

The exclusion of what Mr. Lewes calls the supra-sensible and metempirical from philosophy, the rejection of a constructive by the side of the analytical branch, is tantamount to reducing the object-matter of philosophy to the dimensions of the object-matter of science; a reduction of field which is in conflict with the larger method of philosophy, the method of reflection, as compared with that of science. The larger method requires and involves a larger field or object-matter. Mr. Lewes is therefore quite consistent with himself in reducing the method of philosophy to the method of science, as well as reducing the dimensions of its field. "It is towards the transformation of Metaphysics by reduction to the Method of Science that these pages tend."* The solution of metaphysical problems by the methods of science—this is what I take to be the purpose of philosophy, according to Mr. Lewes; and philosophy with him, so far as it differs from science at all, must mean the analysis which effects the reduction of philosophical to scientific problems, by reducing the method

* *Problems*, etc., Vol. I. p. 5. And see the whole of the Introduction *passim*.

of philosophising to the method of science, and thus prepares their final scientific solution.

This is why, in my first paper, I described Mr. Lewes as placing the function distinctive of philosophy from science in the negative task which it performed, of disproving and banishing ontological entities. If this appears an inadequate description, as Mr. Main (MIND, No. II. p. 292) has urged against me that it is, I think it is only from its unavoidable brevity that it appears so. I certainly had no intention of denying that Mr. Lewes's treatment of the ultimate generalisations of the sciences included "re-interpretation and analysis"; I do not see how they could be treated at all without doing so; nor yet that Mr. Lewes aimed at reducing them to "terms of Feeling."

The one difference, I apprehend, which is the source of the rest, between Mr. Lewes and myself, is no small one. It relates to the method or methods of philosophy and science;—has or has not philosophy a peculiar method, based on the principle of Reflection? The answer to this question determines its distinctive characteristic with respect to science, and the range of object-matter proper to each. The facts of Reflection, as I contend, make the method of philosophy what it is, and inevitably render its object-matter larger than the object-matter of science. Of course I do not deny that reflection enters into the special sciences and into psychology; they could hardly have been constituted without it. A glance at my two former papers will show this (MIND, No. I. p. 76; II. p. 227). Reflection is the common thread running through all, and connecting them with philosophy. But philosophy elevates this common thread of reflection into a *method;* and it is its method founded on reflection that at once distinguishes philosophy from the sciences and gives it a larger field. Nor do I see, on the opposite view of the method taken by Mr. Lewes, and on the consequent exclusion from philosophy of the supra-sensible, of that part of existence outside of "the smaller section of it which is grouped by a Subject," how philosophy can logically advance a claim to be a doctrine concerning existence as a whole, or can make, as Mr. Lewes nevertheless does, any statement about "the Absolute" (Vol. II. p. 503).

But the distinction between the two branches of philosophy now indicated and I hope justified, the analytical and the constructive, is practically most important. It is mainly for want of such a distinction that those constructive systems which offered a positive solution have failed to recommend themselves. For they aimed at giving an explanation of the universe which should contain its analysis and genesis *at once*, in a single principle.

They attempted too much, and for that very reason they performed too little. Consider it thus. An analysis of the actual world giving us a cause of possible worlds,—how insufficient must any *such* cause be. How narrow a conception, called in to explain how vast a problem!

We must, then, distinguish two legitimate branches of philosophy, the analytic and the constructive. But the analytic branch has already been provided with a name; it is that which I at least have always spoken of by the name of METAPHYSIC. The constructive branch may remain at present undesignated. The kind of problems which will be attempted in it is as yet too undetermined. Indeed it has never hitherto, so far as I know, been distinguished as a legitimate branch of philosophy, as separate from the analytic branch which is Metaphysic, and at the same time cleared and clarified from the pretensions of Ontology, which have been mixed up with it into an undistinguished total. And this is my point of difference from the third of the opinions about philosophy already referred to (MIND, No. I. p. 68), that of the Absolutists. Still less has this new constructive branch been followed with any distinct consciousness of its scope and of the means at its disposal. Nor do I now mean to make any pretensions on its behalf, either as to the soundness of the methods possible to it, or as to the results which may be expected from them. All I say is, that theoretically a legitimate place is open for it in the whole of philosophy; that philosophy has such a branch, clearly distinguishable from Science on the one side and from Metaphysic on the other. And we can see already, in a very general way, what sort of a content it will have. It will consist in the combination of an hypothetical psychology with Metaphysic. It will be hypothetical psychology, psychology carried up into more general regions, because it can only advance by assuming consciousness to be separable from its objects and conditioned by its organism, whatever that organism may be. It cannot, like the analytic branch, *begin* with the objective aspect, but must begin with the subjective, as the only one which is known to it. This it does in making the above-mentioned hypothesis of changes in regard to the ultimate elements of our own subjective analysis. And it ends with the objective aspects corresponding to this new beginning. That is to say, its method is that which we have seen, in the preceding paper, is the method of psychology proper. Its aim is to put the objective aspect, a new hypothetical world, to the hypothetical subjective aspect with which it begins. It is thus closely connected with what is the great problem, as yet totally unsolved,* of scientific psychology,

* Mr. Lewes takes a wholly different view, which I cannot in this place discuss.

namely, What is the mode of connection between consciousness and its organism; or, in what way is it conditioned by its organism? We know at present nothing more than the mere fact of the dependence.

The constructive branch of philosophy is accordingly to be regarded as a philosophised psychology, or the return of Metaphysic upon psychology. The most abstruse problem of psychology is the starting-point of the constructive branch of philosophy. Yet the constructive branch is not a higher branch of philosophy than the analytic. This Ontology professed to be. But it is clear that, however large and sweeping we may suppose the constructive branch to be, as it has now been sketched, still it is and must always be impossible for it to transcend the ultimate distinction of subjective and objective aspects, or to resolve these into a higher unity; for this would be to overpass the very limits, to abolish the very distinction, to the establishment of which it owes its own existence as a branch of philosophy. Above and beyond all other branches of knowledge is that subjective method whose last word is ANALYSIS.

One word in conclusion as to the permanent motives for philosophising. Science has its existence and development assured to it by the various utilities which it procures, as well as by the satisfaction which it affords to the deep-rooted passion for pure knowledge. Philosophy has this latter guarantee in common with science, but the utilities which it procures are not so obviously and inevitably manifest. They are, nevertheless, equally real and equally necessary, that is to say, depend solely on philosophy as much as the others depend solely on science. They belong to the moral more than to the physical world. All the moral sciences, the sciences of Life and Manners, depend upon philosophical analysis in the last resort; the philosophies of Religion, of Morals, of History, of Law, of Æsthetics, seek the definitions, the divisions, and sub-divisions, of their object-matter in the distinctions which general subjective analysis alone supplies. The history of the development of Religion, of Morals, of Civilisation, of Law, of Art, is not enough. Tracing their gradual changes from an earlier to a later mode of existence does not tell us *what* they were at first, nor *what* they are now. At every stage which they traverse or attain, their condition at that stage requires analysis, that we may know what it is that they have been, what it is that they have become. Psychology cannot explain Shakespeare, nor analyse the Fourth Gospel. We want another analysis, not to supersede

but to complete the psychological. We want an Organon for the *Literæ Humaniores*. The only Organon which is at once sufficiently subtle for this purpose, and sufficiently comprehensive to embrace science as well as literature, is that which is offered by philosophical analysis,—as yet indeed in its infancy, but it is the infancy of a giant. These are motives which must act with increasing force as intelligence expands and strengthens; and on their permanence depends the permanence of philosophy.

There are yet motives of another kind which concur to the maintenance of philosophy. The problems of the constructive branch of philosophy suppose the solutions of some at least of the problems of the analytic branch. This analytic branch, then, which I call Metaphysic, has the key, *if there be a key*, to the questions which concern that larger imagined whole of which the actual world, as science discovers it, is a part, the sea of possibility out of which the island of actuality rises. If there be a key—yes, *if;* but so long as science cannot say there is *no* key, does any one suppose that mankind will cease to look for one? Religion alone forces us to the attempt; for God, restricted to a finite region, cannot be an object of worship. The moral law compels us; for can that law which *conscience* obeys be a law of less than eternal validity?

The problems of the constructive branch, therefore, have an inherent power compelling our attention; they have also an attracting interest; an interest partly of the same kind as the intellectual interest of pure knowledge, and partly also moral. The possibilities which these problems envisage are possibilities of an emotional kind, as well as an intellectual. They have a fascination for meditative minds, a fascination which perpetually induces such minds to frame hypotheses, and calls forth as perpetually the reaction of analysis and criticism. Nor will an hypothesis which is philosophical admit of other than a philosophical criticism. Philosophy alone can understand philosophy; the criticism must be of the household of the hypothesis. The two branches of philosophy, then, which alone are adequate to interpret and explain each other, the one perpetually inventing, the other perpetually analysing and criticising, hypotheses, rest ultimately on the same motives, and spring from the same reflective root. The only competent criticism of the constructive branch is furnished by the analytical; and, so long as there remains anything unknown to be discovered, not science but philosophy itself, that analytic philosophy which is Metaphysic, will remain the speaker of the last word.

SHADWORTH H. HODGSON.

VI.—HERMANN LOTZE.

Hermann Lotze of Göttingen is by almost universal consent the most popular philosophical teacher that Germany now possesses. Perhaps a few men of science who also dabble in philosophy are inclined to rate Schopenhauer and Hartmann higher, but this preference is commonly found on due questioning to rest upon prejudice. They admire Hartmann because they say he has demonstrated Atheism, or for some such theological reason foreign to the whole matter. Lotze's influence has made itself felt most deeply and has spread most widely—so widely that I doubt if there is any German thinker under forty years of age on whom the Göttingen professor has not set his intellectual stamp. Nor is his influence confined to Germany; it is equally great in Holland; it is manifesting itself in France; Lotze is already well known in England; and here in Scotland all our students who read German are fascinated by his *Mikrokosmos*. And yet he has founded no school, and can scarcely be said to have many disciples; but he has the gift in greater measure than most living writers of setting men a-thinking, and he does not ask those whom he teaches to think to keep within the lines on which his own thoughts run. In this lies his power.

Rudolph Hermann Lotze* was born on the 21st of May, 1817, in Bautzen; he was educated at the University of Leipsic, where he studied in the two faculties of Medicine and Philosophy with such success that in 1839, five years after his entrance, he was able to qualify as *docent* in both faculties. His first work was published while he was a *privat-docent* at Leipsic; it was entitled *Metaphysic*, and appeared in 1841. In the following year, 1842, he at once leapt into fame on the appearance of his *Allgemeine Pathologie und Therapie als Mechanische Naturwissenschaften*. This book led to his appointment as extraordinary professor in Leipsic. In 1843 he published a *Logic*, which has been long out of print. In the following year, 1844, he was transferred to Göttingen, where he was made ordinary professor in the faculty of Philosophy, and where he has since remained. Since his appointment to Göttingen Lotze has given several books to the world. In 1846 he published *Ueber den Begriff der Schönheit*, and two years later *Ueber die Bedingungen der*

* In his earlier writings Lotze signs himself Rudolph Hermann; in his later ones he drops the first name and signs Hermann.

Kunstschönheit, two tractates on Æsthetic. His *Allgemeine Physiologie des Körperlichen Lebens* appeared in 1851, and in the following year *Die Medicinische Psychologie oder Physiologie der Seele.*

Lotze's greatest work, however, and that by which he is best known and will be longest remembered is the *Mikrokosmos, Ideen zur Naturgeschichte und Geschichte der Menschheit.* The first edition, in three volumes, appeared in 1856-1864, and the second edition, also in three volumes, in 1868-1869. Since then Lotze has evidently been recasting his earlier works on Logic and Metaphysic, and the fruits of this have appeared in a new treatise on Logic published in 1874, which is announced as the first part of a System of Philosophy.

The philosophical position of Professor Lotze is best indicated by the word *Ideal-Realismus* — a term which he himself frequently uses, and which is employed in Germany to denote that school of thought which stands midway between the philosophies of Hegel and Herbart. The late Friedrich Ueberweg, whose *History of Philosophy* was written according to the principles of this school, and whose *Logic* embodied in the main its scientific principles, contributed in 1869 an article to *Fichte's Zeitschrift* which still remains the most concise summary of the principal characteristics of Ideal-Realism. According to Ueberweg Idealism on the one hand and Realism on the other are contradictory extremes, both of which are to be shunned. And lest English readers may be misled by the term Realism it ought to be noticed that the word in modern German use means precisely the opposite of what it did in scholastic times. Modern Realism is as near as may be to the old Nominalism. Ueberweg would call Plato's Dialectic, Schelling's theory of a World-Organism, Hegel's Logic, specimens of Idealism. Kant's Categorical Imperative, and the Christian thought of striving after the Kingdom of God and its righteousness are also idealist. Realism, on the other hand, is represented by the Atomism of Herbart, or the Association theories of Professor Bain. The late Mr. Mill's Utilitarianism would have been called realist. The question which separates these two modes of speculation is one of the oldest in the history of philosophy. Which are the more important, the primary, the creative—thoughts (*ideae*), or things (*res*)? Do things rule thought, or does thought rule things? Have our human thoughts, conceptions, notions or ideas a subjective validity only, or do things *in rerum naturâ* really exist in the very way that we are compelled by thought to think them

as existing? According to Ueberweg there are two false ways of answering the question, and these two answers represent respectively Idealism and Realism. The Idealist, with his axiom of the identity of Thought and Being, at once leaps to the conclusion that the laws of Thought have an objective validity, rule everywhere, and really mould Things, which are their less real counterparts. The Realist, on the other hand, fully convinced of the limited character of his knowledge and range of thought, comes to the somewhat hasty conclusion that all human conceptions, notions and ideas are only stereotyped aspects of Things and derive what reality, truth and permanence they have from the things which they so imperfectly represent. Between these two answers Ueberweg finds room for a third—the answer of the Ideal-Realist; and of this third answer, it may be said that it reaches the Idealist goal by the Realist road. It asserts a parallelism between Thought and Being, although not an identity; but this parallelism is discovered by patient questioning of man and nature, it is not assumed as an axiom at the beginning. The Ideal-Realist, in short, claims that he can meet the Realist on his own chosen ground, the investigation of phenomena, and starting from this reach the conclusions of the Idealist. This movement in Germany represents that reaction against sensationalist philosophy and pessimist ethics which itself was a reaction from the Idealism of Hegel. Men felt that Hegel carried things with too high a hand for their peace of mind, and they fell a-grumbling, the grumbling becoming articulate in such systems as those of Herbart and Schopenhauer. By-and-by they thought better of it, and profiting by the experience learnt in the interval they again set out for the promised land of Idealism, resolving to walk to it this time and not to fly.

I do not give this as an accurate account of Hegelianism in its relations to the Ideal-Realism of the present day, but it may serve to represent the attitude which men like Ueberweg and Lotze take up towards that philosophical system.

It must not be forgotten, however, that Lotze, while occupying some such position with regard to Hegel and Herbart as is indicated by the phrase Ideal-Realism, has a place of his own which is too unique to be described in such a general way. He is a student of physics whose genuine poetic and artistic nature has forced him over the boundaries of physical science, whether mental or material, and made him feel that there is a world lying beyond that mechanism which is the *all* of science. His medical training gave him a love for physical science in all its various branches, and he was

especially attracted by physiology and chemistry. The study of physical science, it has often been remarked, does not incline men to Hegelianism; it rather makes them contemptuous of Hegel's sweeping generalisations. They learn that it is impossible to map out the world beforehand, that all such attempts are not merely useless but demoralising in science, and they fancy rightly or wrongly that such an Idealism as Hegel's is full of attempts of this kind. Lotze undoubtedly acquired his reverence for patient investigation and his conception of the grandeur of natural law, together with his distaste for Hegelianism from his scientific training and work. Historical studies, too, kept him from accepting Hegelianism, and cultivated in him that wise scepticism in which Bacon delighted. They made him shun all hasty generalisations which are the bane of the philosophy of history and cherish a wholesome dread of trusting too much in the Hegelian categories and making them serve, as so many of Hegel's followers are inclined to use them, for a ready-made table of contents to the history of the world or that portion of it whose genesis they are tracing.

At the same time there is another side in Lotze's character which tempers his enthusiasm for natural law and physical science. He has a poet's feelings and longings after the ideal, which force him beyond the sphere of physical science. His poetic and artistic insight prevents him from accepting the results of science as the whole of what is to be said about God, the universe and the soul of man, for it gives him a vision of ideals everywhere partly seen in, but partly hidden by, the things of sense and time with which science has to do. For Lotze, as for every poetic nature, those ideals which are clothed upon by what we see, taste, touch and handle, are the true realities. There is a more perfect straight line than any we can draw, there is a more perfect curve than our most faultless instruments can sketch, there is a beauty surpassing anything that has been seen. He has a poet's hopeful sympathy with the imperfections of the sensible universe. This poetic and artistic nature of his makes him recoil from the domineering pretensions of physical science, more especially when it attempts to penetrate the province of mind, and it gives him a real insight into what lies beyond the mere mechanism of the universe. Many philosophers are poetic enough, if to be poetic means to make quotations and express in neat couplets their own narrower ideas; but Lotze does not make quotations. He possesses a poetic mind because the world of poetry and art is a real world to him in which he lives and moves and has his being. Poetry and art are not for him, the

regions of abstractions—the realms of quaint aspects of everyday facts. They are full of realities, and they have to be taken into account whether the philosopher likes it or not. So he separates between what he calls the mechanical and the ideal in nature, and his constant endeavour is to state and restate with unwearied energy that the mechanical part of nature is not the whole of it, that above and below and beyond and all through the mechanism there is the ideal, the poetic, the artistic, the ethical. He is ever telling his readers that all above and beneath and around the bit of nature which we can weigh and measure, which we can dissect and fit into our formulas, there is a region which is for us the realm of wonder. In ourselves, besides those series of sensations and trains of associated and blended ideas which come and go according to laws which can be measured and explained, there are flashes of inspiration which we can never bind nor limit, there is the ideal in its varying forms which will not submit itself to empirical psychological laws, there are depths and inner recesses of our being, the mysterious springs of hope and fear and faith, which can be fathomed by no sense plummet line however lengthened out by an association principle. In the universe about us, if we are to think it intelligibly, there is more than the complex mechanism of physical law. There is in it what renders art and poetry and science, as opposed to sciences, possible—and we must take that into account. In short, Lotze's poetic and artistic nature makes him recoil from a merely empirical philosophy, just as strongly as his evident fondness for scientific investigation repels him from Hegelianism.

But with all Lotze's keen insight into the presence and power of the ideal, there is in him a strong tendency to individualism which forbids him to speak of his system of philosophy as his idealist predecessors would have done. In the preface to his latest book—the first part of his System of Philosophy—he says: "When I venture to call this book the first part of a System of Philosophy, I hope it will not be supposed that I am putting forward those pretensions which have formerly been associated with the name. My intention can be no other than to state my own personal convictions in such a systematic form as shall enable the reader to judge how far they not only agree in themselves, but also how far they serve to bring together, within the compass of a cosmological conception which can be defined, the various departments of exact knowledge, from across the great chasms which have kept them apart." The same view is repeated, at least by implication, in many other places. Lotze seems to say that *the* system

of philosophy is not to be expected from any single philosopher. It is not Kant's nor Hegel's; it is not Herbart's nor Mill's. Each has his own system, and all of them have *the* system among them. His idea is that philosophers have not got to make the world, but to understand it; and to understand it each must work away from his own point of view, each must make his own system, each must put forth in systematic form his own personal convictions about the whole matter, and then leave it with the assurance that he has done the portion of work allotted to him, and that the *Welt-Geist*, or, to put it more prosaically, that history, is rolling after him and will not allow anything true and valuable to perish. Some critics infer from this intense individualism of Lotze that his philosophical opinions are not so far removed from those of Herbart as a more superficial view would lead us to suppose, but this notion presents insuperable difficulties. Erdmann and Zeller have given another explanation which, though not entirely reconcilable with what seems to me to be the truth, comes much nearer to it. They suggest that Lotze has gone back to Leibniz and revived his Monadology in all its essentials, and has simply ignored what has come and gone in the interval. Such statements, however, seem to me to be too sweeping. Men do not reproduce old theories without variation; for one thing, they are always children of their age and are more or less in sympathy with the movements of their time. It is quite possible to be a disciple of Hume even although Kant has come in between us and the great sceptic, for a negative philosophy is much the same at all times, but the case is quite different with a constructive system. And apart from this, Lotze's monads, if the phrase may be used, have not that intense individualism which characterised the monads of Leibniz. Lotze is too much a poet for that; he has too great a share of the spirit of Lessing. His monads are by no means drawn with such distinctive outlines as to allow us to call his system a Monadology. There is a poetic haze about them, under cover of which they lose their sharp individuality. There is always history behind the individuals, and history has a potency to universalise. I think that Lotze would agree with Ueberweg when he said that it was the business of the race, and not of even the most gifted members of it, to construct and advance science, and if so, there is behind the individualism a universalist view, crass it may be but real, and acting with great influence upon the whole round of philosophical conceptions. Lotze himself, when trying to show that the fact that the body is composed of a variety of monads does not make impossible the substantial individuality of the man, soul and body, illustrates his theory by the relation

between the *Zeitgeist* and individual men and women. There is a *Zeitgeist*, he says, which is not any one man, and yet exists in the consciousness of different individuals, weak in the stupid and unsympathetic, and strong in those of opposite character and capacity, and thus the individuality of each shades off into the *Zeitgeist*, which is the Universal behind them all.

I have dwelt at this length upon these two characteristics of Lotze's—dread of materialism or the triumph of the mechanical view of the Universe, and mistrust of the idealist solution—because unless they are thoroughly kept in mind his philosophy is very apt to be misunderstood. According to Lotze these two views have been opposed to each other hitherto, and this opposition has had the saddest consequences. Science ought not to be viewed with disdain or it will avenge itself, and philosophy ought not to be looked on with contempt or it in turn will do harm to science. The old opposition between the sense-world and the supersensible ought to cease, Lotze thinks, and the great problem of his *Mikrokosmos*, as he states it in the preface, is to show "that the strife between the two is an unnecessary misery which we bring upon ourselves by stopping short in our researches." Science need not fear the Ideal, and the Ideal has nothing to fear from science. Science has not modified, still less destroyed one of the ideals belonging to the supersensible world. The growth of science, rapid as its advance has been, has not made the universe seem less poetic, nor has it driven poetry and faith from the world. She robs us perhaps of not a few cherished ideas, but in the end she restores more than she takes away. Lotze seems to say to the materialist and to the empirical philosopher that he will grant every affirmative statement they like to make, he will accept their account of how the human animal becomes conscious, he will listen without contradiction while they propound their theory of an intelligible universe, but while he does so he will prove that only half of what ought to be said has been said. As he himself puts it: the more willing we are to make admissions to science the more necessary is it to hold up the other side of things; the two sides must be reconciled not by each yielding a little alternately, but in a much more thoroughgoing way, and this reconciliation will take place when it is proved "how exceptionally universal is the extent, but how completely subordinate is the mission which mechanism has to fulfil in the universe." This is the burden of the preface to the *Mikrokosmos*, and also of the opening chapters, but a bald statement of the problem or even a succinct summary of the reasoning can give no idea of the beautiful poetic thought, and

of the strange musing style of the book. Whoever reads these chapters finds himself beginning rather a magnificent poem than a dry philosophical treatise, and is tempted to think that the poetic or artistic impulse rather than the strictly philosophical sways the mind of the writer. When Lotze rejects the mechanical explanation of the universe and the soul of man, it is quite as much in the spirit of Tennyson's

> Let science prove we are, and then
> What matters science unto men?
> At least to me? I would not stay—

as in the mood of sober philosophy. One is inclined to say that Lotze is as much moved by noble antipathies as by any reasonings, and perhaps Lotze himself would agree in this, only with the proviso that much reason may lie in poetic likes and dislikes. In the chapter on Truth and Knowledge he says: "for all of us there comes a time of life in which a universal insufficiency begins to overshadow the reality we have hitherto simply taken in and enjoyed, and yet a hidden light seems to shine through these shadows," and then he goes on to show that when we are impressed with the reality of the beautiful, the good and the holy, when we come to think that these are the only realities and that everything else are appearances only, we become angry with the dull facts of life and in a kind of poetic despair we cling to the mythological idea that "das Werthvolle allein das wahrhaft Seiende sei." We be-soul things, he says, with our own ideas of what ought to be, we idealise dull facts, and cast a glamour of enthusiasm about the commonplace which surrounds us. Lotze does not condemn this idealisation of dull life. On the contrary he defends it. There is both strength and weakness in the tendency, he says. There is weakness because it does not do to fly in the face of science and scientific facts, and we must learn with all patience not to contradict passionately the course of nature, but to follow it aright with patient hopeful calmness. But there is strength in the tendency because there *is* a truth in it which is somehow lost in our more sober observation of nature. This enthusiastic intuition guesses at many a truth, and sees many a secret communion of things which sober plodding science going on in its dull way misses. There is many a secret of nature which is hidden from the wise and prudent and is revealed to babes. The time will come, says Lotze, when the dream, "das Werthvolle allein das wahrhaft Seiende ist," will prove true, and we shall see nature to be what we long ago dreamt that it was. In Lotze we see the spirit of German Philosophy sadly afraid that its old

Idealism was but a dream of youth, yet too full of the old memories to turn to the pessimism and despair of Schopenhauer and the empiricism of Herbart, and so animated with the thought that it will yet patiently plod its way towards that land it had once thought to reach by youthful soaring. All throughout the *Mikrokosmos* we are carried from the real to the ideal, all throughout it sounds the refrain of Shelley's—

> Oh happy Earth, reality of Heaven!
> Genius has seen thee in her passionate dreams.

It seems somewhat commonplace to attempt to reduce a philosophy like that of Lotze, which consists so much in poetic and artistic aspirations engrafted on scientific study, to a series of bare philosophical principles, and the attempt can never be wholly successful. For the great suggestiveness of Lotze's writings, and their value in our present scientific age with its insatiable craving for exactness, consists very much in the appreciation he has of what cannot be defined and in his consciousness of its presence. His readers are always made to feel that there is more in nature than we can describe, that there is an Infinite all around us which cannot be expressed in philosophical formulas, though it is part of that universe with which philosophy has to do. But the attempt will do no harm if we keep in mind the caution just given.

From what has been said already it is evident that Lotze's warp and woof are his two principles of *mechanism* and *idealism* —the mechanism and the idealism in nature and man. From these he weaves the web of his philosophical system, with these he constructs his cosmological conception and provides explanations for all the complicated problems which philosophy suggests.

By Mechanism or mechanical side of things Lotze means all that belongs to science, all that can be expressed in natural laws, everything which belongs to the regulative framework of the universe. The mechanical view of the universe is that which regards it as the blind outcome of law, the product of mere evolution, the result of a blind impulse which is not animated by volition of any kind and is enlightened by no ray of sublime intelligence. It is that which regards nature as a whole of moving things or forces acting and reacting on each other, and which insists negatively that there is no creative freedom going on in the universe now. According to Lotze the number and elaboration of machines, which is a sign of our times, incline us to look on the whole universe as a machine, and this inclination is helped by the increase of man's

power over nature, by his acquired capacity to make things in the same style as nature and even to improve on its workmanship. We can make new plants, new breeds of cattle, new crystals. This mechanical view of nature which was once supposed to apply exclusively to inanimate nature has now shown its power to rule over animate nature also. Plants and animals are by some regarded as machines, they are fed, they work and wear out as machines do. Even men are held to be machines. Our bodies are portions of nature, our minds work according to regular laws. Our moral nature seemed a last refuge against the all-absorbing reign of law, but we find that there is the same average of crime every year; a certain number of murders and so many thefts have got to be done it would seem and are done accordingly. Enclosed in the greater automaton of nature is the smaller one, the soul of man. This is the mechanical view of nature and of man. To it belong all theories which describe the universe as the production of natural law working uninspired by a supreme intelligence, and all theories of man which make him and his intelligence and morality the result and exhibition of natural laws, whether of association or any other. This mechanism Lotze accepts, but declares that it is only one side, and that the subordinate side in nature and in man.

The other is Idealism or the ideal side of the universe. This side is, according to Lotze, as real and as universal as the other; and it is more important, for the other is subordinate to it. The idealist view of the universe has undergone many transformations, but no essential alteration. There is an ideal meaning in nature, according to Lotze, which can never be discovered by mechanical explanations. This ideal meaning was expressed in the youth of the world by what we now call mythology, when men thought that all nature was alive. In earlier philosophy it appeared in theories of final causes and adaptability of means to ends in creation. Now it exists in poetry and art, and whatever be the advances made in science it is not likely to die. The roots of the Ideal are to be found in those universal laws which exist within us, and which altogether apart from a gradual experience we find ourselves compelled to accept, such laws as those of mathematics for example. They are also to be found in the faith which we all have in the ideas of the good, the beautiful and the holy. They are to be found in the intimations which come to us of an Infinite and an Eternal. All these things are as really in man as memories and perceptions, and they must be taken into consideration by the true philosopher. Thus there is set over against each other, but not in irreconcilable opposition,

two sides of nature and man, and these two sides when reconciled give us a system of philosophy.

The question here arises how this reconciliation is to be made, and what is the leading thought which will give such an explanation of the natural relations as will bring about the reconciliation. Here Lotze rejects with emphasis both the Hegelian and the Herbartian theories. The thought of Causality which is Herbart's key to the mystery will not do, Lotze thinks, for causality does not preserve the ideal, or at least it does not preserve the distinction and yet keep the connection between the ideal and the mechanical which the solution of the problem demands. Nor does Hegel's Idealism please him better. To say, as Hegel according to Lotze does, that natural objects exist in order to take their places in a classification, and to give an embodiment in phenomena to the logical gradations of Universal, Particular and Singular; to say that the life and motion and mutual action and reaction among natural objects go on in order to celebrate the mysteries of Difference and Opposition, of Polarity and Unity; to say that the whole course of nature was appointed in order to carry on a rhythmic motion in whose pulsations Affirmation, Negation and Reciprocal Limitation perpetually relieve each other—is no explanation, Lotze thinks, nor does it show even a due appreciation of the problem to be solved. What is to be done is to reconcile the mechanical and the ideal, both of which are actually present in nature side by side with each other. So far from bringing about a reconciliation, Hegel, according to Lotze, has destroyed the mechanical at least, if he has not destroyed the ideal also. For Lotze thinks that Hegel comes to look even upon the world of spirit, upon the Ideal according to Lotze's use of the word, upon thought and the whole spirit life, as merely the highest form of phenomena which arise to manifestation by means of the unfathomable power of Yes—No—Both.

Having rejected the ideas both of Hegel and Herbart, Lotze thinks that the leading thought of *purpose* is the idea which will effect the reconciliation he has at heart. This idea is not one-sided, and the reconciliation it effects is not therefore a destruction of one side or both. It implies reciprocity, and the reciprocity of dissimilars. The ideal is the purpose for which the mechanical exists, and this thought of purpose gives the solution of the problem. The two sides are required the one for the other, and thus Lotze's main idea is teleological. We explain the mechanism of the universe when we can show its worth, its power to reveal the ideal. The inner world of the good, the beautiful and the holy is the key to

this outer world of forms. The one is to be explained by the other.

Lotze thus views the universe as a world of spiritual natures which are environed and kept in their places and taught to do the work given them by a mechanism of natural law. This mechanism is not simply an external restraint imposed on a realm of free intelligences, it springs from the nature and circumstances of the spiritual beings it in a measure controls. It is this external mechanism we see and explain and experiment upon in natural or physical science, but so long as we keep to it we do not get beyond the surface of nature nor do we even understand the surface itself. All this outward mechanism, which is the whole of science, has itself to be explained by something beyond itself, by the purpose which is in it. For things exist for a purpose, and this purpose is the sole reason why they exist at all. Other explanations may be given, but such explanations require further explanations to explain them, and so on, until we come to the last and final explanation, which is that they exist for the purpose of realising an idea. Every thing, every fact, has its own peculiar and necessary place in the whole world of things because it manifests or brings to actual birth and being an idea. The ideal is the purpose in the real, and the mechanism of the universe is what brings the ideal to light. The mechanism in nature is what sustains and displays the idea in process of evolution.

By combining in this way the Ideal and the Mechanical Lotze arrives at a cosmological conception which is neither the one nor the other, but which he thinks can embrace both. It is both ideal and real, it is founded on the abiding presence and value of the ideal, but it provides for the presence of the mechanical as well. Critics have called it teleological-æsthetic. The teleology culminates in the idea of God, and it is called æsthetic very much because it is so animated by the poetic and artistic ideas which have such a strong hold over Lotze. His fundamental stand-point is therefore a teleological Idealism which recognises that the idea of the Good is the sufficient reason for all that exists and happens, and his metaphysic has its roots in Ethics. It ought to be observed, however, that Lotze does not confine the Good to the realm of action. Beauty is good, so is holiness. Good is used more in its artistic poetic sense than in its strictly practical meaning. The universe, the actual universe, is therefore made up of the Good and all good things, or, as this comes to be explained, it comprehends the personal spirit of God and the world of personal spirits whom he has created. It is for them that the phenomenal world exists, and that the

mechanism of nature has been set in motion. They furnish its explanation and sufficient reason. This is the central position from which Lotze views everything, it is the standpoint from which he works, and this must be understood by all who wish to know his philosophy.

It is impossible, within the limits of this paper, to show how Lotze from this starting-point works out all the most interesting problems suggested in philosophy, psychology, æsthetics and metaphysics: I can only show how he applies his principles to settle a few such questions as the relation between Knowledge and Existence, Space and Time, the relation of the Soul to the Body, and the principle of Association.

But before giving one or two such illustrations of his method and its results it will probably make the whole subject more intelligible if his general idea of phenomena is first brought into view. According to Lotze a phenomenon always stands in a two-fold relation. It requires a substrate or substance *of* which it is the phenomenon, and it requires something *to* which it is a phenomenon—to which it reveals that substrate whose phenomenon it is. The essential import of a phenomenon, therefore, is that it is a mean in relation to two extremes, that *of* which it is a phenomenon and that *to* which it is a phenomenon. This is the purpose of a phenomenon, the sufficient reason of its existence. Phenomena are not therefore merely subjective, they are objective manifestations; they do not depend for their existence on being perceived, for they have an existence from their substrate apart from that; but at the same time they are there to be perceived and are purposeless unless they are perceived. Lotze also sees that there are what may be called forms of phenomena; phenomena may be divided into classes; and these various classes or forms of phenomena correspond to what he calls the ontological forms, and reveal them or make them manifest. Thus the phenomena of the sensible world are means whereby the teleological process, which binds together the universe of things, and which works in accordance with the ontological forms, is revealed to the mind of man, and there is a parallelism between the cosmological or phenomenal forms and the ontological forms. This parallelism is of course one peculiar phase of the general parallelism between the real and the ideal, between things and thought. Other parallelisms also emerge. There is a parallelism between thought and speech, for example, as well as between things and thought—Metaphysics, Logic and Grammar are all parallel streams,

We may now refer to Lotze's view of the relations between Existence and Knowledge. It is common in philosophy to speak of the difference which there is between what really exists and happens and our knowledge of these things and events, and to assume that the world of real existence is not the same as the world of knowledge. It is thought that just because things are known to man they must be humanised, so to speak, in the very act of knowledge and changed into something more or less different from what they really are. Man knows things, it is said, not as they are in themselves but as they are known to him, and so a universal human error, in addition to any number of particular and special errors, creeps into human knowledge; we see things through our human spectacles which may be blue or green or out of focus for aught we know, and so we do not see correctly. Now Lotze denies all this. His axiom of the thorough-going parallelism between thought and things prepares us for this denial; still his mode of getting over the difficulty has always seemed to me one of the most obscure parts of his philosophy, and one which I cannot altogether satisfactorily expound. His general idea seems to be that when we speak about the universe of things we ought to remember that it is made to be known, and that being known is one part of its existence, is a phase of its character which should be taken into account. The world of outer objects is only a part of the external world: for these objects are only complete when they are being known. So far then from saying that things are robbed of part of their reality in the act of knowledge, we ought to say that in this act they fully become what they are. They are made to be known, and their purpose is unfulfilled unless they are being known.

Lotze has worked out this somewhat obscure subject in what he says of Space and Time. He treats of Space and Time in two different places—first, psychologically, and then metaphysically.* The first passage does not immediately concern our subject, but since it will help us to understand the second, it may be as well to refer to it. Lotze is discussing Innate Ideas. Long ago, says he, the phrase meant that we had an innate knowledge of certain facts, such as the immortality of the soul. Philosophy has shown the folly of this, and innate ideas are now looked on as rules by which we take hold of and mentally manipulate what is given us in perception when we bring it under the forms of Space, Time, Number and so on. We are not to suppose that we have in our minds ready-made ideas of Space, Time, &c., before we get any perceptions from external

* *Mikrokosmos*, Vol. I., c. vi., Vol. III., c. x.

experience; on the contrary, long before we know definitely what space and time really are we have been taking into our minds ideas from without. What is meant is that the nature of the mind is such that this is the way in which the mind works upon what is given it. Some people try to account for all this by showing how it arises out of the mechanism of ideas; they try to show how Time and Space are created out of association of ideas, but Lotze thinks that all such endeavours are misspent labour. Our ideas, he thinks, would never arrange themselves into unities unless the mind itself arranged them. The mind seizes on the vague blurs of sense and works them into definite wholes—into the image of a world in whose inner connection it sees the reflection of its own unity. So far Lotze follows Kant. But while Space and Time are in the mind and therefore modify all things which are known by the mind, yet they belong none the less to external things which find their true reality in accommodating themselves to these forms of intuition. Passing now from the psychological to the metaphysical aspect of the matter if space belongs to things it does not belong to their essence nor to any part of their essence, but to what may be called their relations to each other, their juxta-position. Lotze adopts Kant's doctrine of space, and thinks that it is merely a form of our subjective intuition, but he objects to Kant's proof of his doctrine and also to the way in which he uses the theory to construct his cosmological conception. I pass over his criticism of Kant's theory and proceed to his consideration of the ideality or reality of Space. His answer is that space has both ideality and reality. Space is just the possibility of the juxta-position of many things. This does not say *what* it is, but it points out the way. All that we know about space to start with is the certainty that every point is separated from every other by one and only one straight line. This is true of every two points, of every pair with every other pair, and from this we can advance to a *whole*, hanging together by the same law. And thus space comes to be a sort of *integral*, which states the whole which arises from the summing-up of the infinite applications of the law of juxta-position, when we abstract real things and put moving points in their place. If this be space then it is not a reality which exists in the form of emptiness outside us, it is an ideality so far. But it is also a reality because it expresses relations which really exist, and to think things in space, as we are compelled to do, does not alter them so as to take away from their reality. In the same way the other forms of Intuition, &c., do not abstract from the reality of

things. Lotze's discussion of Space and Time from the psychological point of view, is a very fair specimen of his treatment of such questions.

Another example of his mode of investigating mental phenomena is presented in his discussion upon the existence of the human soul—his psychological proof for Immaterialism. The argument is given at greatest length in the *Medicinische Psychologie*, Bk. I., but is precisely the same, though somewhat more condensed, in the *Mikrokosmos*, Bk. II., c. i. He begins by picturing the flow of the universe in ever-changing phenomena about us, and then compares with this the flow of thoughts, feelings and desires within us. The mechanical view of nature suggests that there is no real unity in our inward life. Man's soul appears to be only a spray rainbow floating above the eddying tide of things, yet in spite of the suggestions of the mechanism of the universe the common belief of humanity has always maintained the unity of man's inward life, and has always refused to believe that we are only conglomerates of sensations swept into us through our acquisitive faculties whenever external things happen to rub up against us, and kept together because somehow or other they stick there and form a cluster. However, this is but a universal presumption and ought to be proved. Lotze then discusses the three common proofs for the existence of the soul. These three proofs are—internal spontaneity, the gap between physical and psychological sensations, and the unity of consciousness. He admits that the first proof is somewhat weak. We all feel of course as if we had this internal spontaneity, but then we feel many things and know that we cannot trust our feelings. What seems to be spontaneous is often the effect of impulses from without. Of course psychologists, when hard pressed here, take refuge in the moral argument for the existence of Freedom. But to many people this moral argument has very little weight, and this shows at least that it is not indisputable; and there is no doubt but that our inner life shows unmistakable traces of being to a great extent subject to the reign of law. On the other hand no arguments have yet been adduced which suffice to show that the life of the soul is derived from the life of the body. So, arguments apart, we have the old presumption to fall back upon. In discussing the second argument, the gap between the physical and the psychological side of sensations, Lotze lays great stress on the fact that no investigation has told, nor can tell, where motion in the nerves turns into sight, hearing, touching and tasting; the one cannot be compared with the other, the one can never be

the equivalent of the other. But Lotze evidently thinks that *the* great argument for the existence of the soul is that derived from the unity of consciousness. The unity of consciousness enables us to make the whole of our bodily conditions a single object of self-consciousness. This argument does not require that we should be always conscious of this unity. It is enough for the purpose if we have the power, though we may not always use it. We may sometimes lose ourselves in the feeling of the moment, but we should not know that we did, if we were not, as a general thing, conscious of being ourselves. It is important to notice the precise point of the argument. We have not this unity of consciousness because we *appear* to ourselves to have it, for many things are not what they appear to us. But we have it because we appear to *ourselves* to have it. —To ourselves, that is the point, for as was before explained, Lotze thinks that there are always two factors to a phenomenon, there is what *appears* and that *to which* it appears, and it is in this second factor, which is always the same, that we find the unity of consciousness. And so Lotze brings us back to the old fashioned idea of a separation between the soul which is unseen and the body which is perceived by the senses. But he ends in his cautious way with the reflection that there may be after all a higher unity; for our minds are always aspiring to bring everything to a unity. "And so," he says, "this opposition between soul and body may not be a final and irreconcilable one, but our present life is passed in a world in which its riddle is not solved, but lies unsolved at the foundation of all our thought and action."

Lotze's discussion of the relations between Soul and Body is also very instructive, and is worthy of notice not only because he develops there his theory of Occasionalism, but because it is full of wise warnings against the tendency in philosophical research to be carried away by words, and to suppose that when a given thing has been named it has been explained. It is best, he says, in all researches of this kind to find out first what the facts are, and to persevere in this search even though the facts may not at once suit your ideal principles. If the study is entered upon in this spirit it is wonderful to see how much theorists have been misled by words and how much they have gone on the principle of treating as real their own abstract notions. One of the first questions that comes up is the *band* between Body and Soul, and the various explanations of what this band is. But a preliminary question is whether there is any band at all. No band is required to give the Body and Soul opportunities for reciprocal action. Of course before two substances which act on each other chemically can mutually affect each

other, they must be put into the same vessel, but once together it is not the vessel that enables them to act upon each other. A band between Body and Soul might be talked about if the questions discussed were how the Body and Soul were first brought together, but to talk of explaining the action between Body and Soul by saying that there is a band between them is just to explain a thing by itself. Every reciprocal action that takes place between Body and Soul is a thread out of which the band is woven. Then again Lotze warns us that we can never find out the secret of the relations between Soul and Body by physiological researches. When we look into a machine and see all its wheels and spokes we are no nearer an understanding of *how* it works, we have only exchanged the big secret of the whole machine for the little secrets of its various parts. Upon the whole then, all that we can do is to note the occasions when the Soul influences the Body, and the Body the Soul. It is impossible, either in psychology or in physical science, to get to the bottom of things, we can only watch on the surface the occasions when things take place. This he calls *Occasionalism.*

One of the most suggestive chapters in the *Mikrokosmos* is the one which discusses the principle of the Association of Ideas. Lotze comes to his subject by his usual contemplative roundabout road, taking up, looking at and letting go a whole variety of theories, each of which has something good about it but is vitiated by some fatal flaw. This peculiar mode of dealing with psychological subjects, Lotze has in common with the late Professor Grote of Cambridge, whose *Exploratio Philosophica* is often recalled by some portions of the *Mikrokosmos.* When we begin to study the mind (*Seele*), says Lotze, we find in it the steady use of powers already formed, but it is as difficult to find out about their formation as it is to work out the geological problems about the formation of the earth. The difficulty of this psychological problem is that we cannot, as in physical science, make the different forces work separately, and experiment upon them. We must watch the way in which the forces work now and work together. One of the most interesting and important of those powers is memory. We see in it a certain mechanism, but we cannot define its rules sharply. We see its laws as we see facts, but we do not see that this *must* be the way in which from the nature of the mind it will act; and this difficulty is not so much noticed as it might be, as we are in the habit of wrongly taking over certain physical truths into psychology without thinking much about what we are doing. A great many theories of memory proceed, for example, on the idea that *inertia* is a property of the mind. Why should a con-

ception come back to the mind when it is once gone, or why should a conception once in the mind ever go away? But take the physical idea of inertia away, and we might say—Why not? Again we are always making *pictures* of our consciousness which are at the bottom of half our difficulties. We picture it as a *space* in which things are and into which only so many things can get, or as a *light* which grows dimmer in proportion to the dispersion of its rays, brighter in proportion to their concentration. All theories of memory which depend upon mistaken physical analogies such as these, are and must be useless. Lotze mentions some such theories just to show on what a number of pure assumptions they rest. What is meant by the *strength* of impressions for example? Whatever it may be at first, this difference disappears in recollection. The remembrance of a thunderclap is not different in this respect from the remembrance of a whisper. What is meant by saying that our conceptions get dimmer and dimmer? We cannot see them becoming dimmer, for if we did see them they would not get dimmer. What our conceptions really do is to vanish and reappear with increasing pauses. And so on. He then sums up a whole series of delicate psychological questions by showing that what we ought to do is to observe the phenomena themselves and familiarise ourselves with the ways in which they act. These ways are the laws of Association. The foundation of Association seems to be that the mind does not mix all the elements present at one moment, or the things that succeed each other, in a sort of chemical fusion, but connects them mechanically together. He reduces the laws of Association to those of Redintegration (as Sir W. Hamilton called it) and Similarity; and he thinks that simple conceptions are associated together usually by redintegration, because they have been component parts in a whole experience, while in compound conceptions the way in which the various parts are put together has more influence on our memory than the individual parts themselves. At the same time he says that, however glibly we may talk about Association, there is a great deal in it that we know nothing about, and, although we may speak of definite laws of Association, there are so many things on which the associating impulse depends that there must be a certain amount of incorrectness about our statements. Association brings up an immense number of things from which the mind can make its choice, but its choice will not depend entirely on the ideas themselves or on their associations; as much will depend upon which of these ideas happens to suit the particular state in which the mind is. And this depends on a great number of things, on events past and present, on the physical condition

of the body—on a whole host of things which make an ever changing background for the succession of ideas. We can never know all about this background and yet the course of our ideas may be modified by the smallest portion of it. What modern psychologists call "Inseparable Association" is not discussed by Lotze, but I am inclined to believe that he would look upon the phrase as a contradiction in terms, a theory which would scarcely have suggested itself unless for the purpose of supporting a foregone conclusion.

Space forbids my giving any other illustrations of Lotze's method in dealing with individual problems. English readers who are unacquainted with his *Mikrokosmos* should read the 9th Book, and its charming fresh thoughtfulness will, in all probability, induce them to make a study of the whole work. The great value of Lotze's utterances in philosophy is that he is ever conscious of the infinite overshadowing us, and is always judiciously sceptical of the exact definitions of which this age of physical science is so proud. "Philosophy thought," he says, "that it was bestowing on Him who is more than all that can be called *Idea* an honourable elucidation, when it raised Him out of the dimness of being clung to by the whole heart and soul to the dignity of a notion objectified in pure thought." This bit of quiet sarcasm is as applicable to other sides of philosophy as to the way in which it has dealt with our thought of God.

T. M. Lindsay.

VII.—PHILOSOPHY AT DUBLIN.

Trinity College Dublin (which now constitutes the University)* was founded by Queen Elizabeth in 1591. It was originally intended chiefly as a school of theology for the Church of Ireland, and so lately as my own time the majority of the students consisted of persons intended for the ministry. Hence naturally a good deal of attention was devoted to Philosophy from the first, but being treated in connection with theology rather than from the psychological side, no great progress appears to have been made until the end of the 17th century. The course of general instruction was strictly defined in the statutes drawn up for the College by Archbishop

* Originally it was intended to be *Mater Universitatis;* but when it developed into an University it is not easy to say. The expression is often interpreted as if Queen Elizabeth founded an University which was designed to be the Mother of Colleges, thus actually inverting the words.

Laud in 1637. For the first year the students were to be lectured and examined in Dialectics, with special reference to the *Isagoge* of Porphyry; in the second year the *Organon* of Aristotle was to be expounded; in the third his *Physics*, and in the fourth his *Metaphysics* and *Nicomachean Ethics*.* I do not know under what Provost this state of things began to amend, but I suspect that an improvement was effected by Dr. Narcissus Marsh (of Oxford, afterwards Primate of Ireland), who held that office from 1678 to 1683. It is certain that on the publication of Locke's *Essay* it was eagerly studied in Dublin, and I am disposed to think it was very soon introduced into the College course. This was no doubt in part owing to the influence of the well known William Molyneux, a graduate of Dublin, who represented the University in the Irish Parliament from 1692 to his death. Molyneux was apprehensive that there would be a difficulty in introducing the book into the College curriculum because it was not sufficiently scholastic in its form, but as it appears from his subsequent letters that Dr. St. George Ashe, who became Provost in 1692, was an ardent admirer of the *Essay*, and was desirous of making the acquaintance of its author, it is probable that this difficulty was surmounted. Dr. Peter Browne, who succeeded to the same office in 1699 was likewise a metaphysician (though hardly a disciple of Locke), and no doubt Philosophy at Dublin made further progress during his provostship. Browne, who like most of the early provosts, afterwards became a bishop, wrote a criticism on Locke's *Essay*, and also an answer to Toland the deist, an Irishman but not a graduate of Dublin. It was under Browne that Berkeley pursued his studies and won his Fellowship in Trinity College, and as Berkeley's philosophy rests mainly on a Lockian basis it is evident that the *Essay* had by no means lost its authority in the University in consequence of the provost's strictures. To enlarge on the merits and defects of Berkeleianism would here be out of place. It is enough to say that, as all subsequent idealism and semi-idealism rests on the *Principles of Human Knowledge*, so to the *New Theory of Vision* we are indebted in no small degree for the subsequent developments of the Association Psychology, while J. S. Mill admitted that Berkeley had in substance anticipated his celebrated theory of the syllogism.

That the University of Dublin produced Berkeley at this period was not the result of mere chance; for it is plain that for several years both before and after the enunciation of the

* This was absolutely the whole course, and the College authorities received no express power to vary it until 1760.

leading principles of his system, the University was the seat of an intellectual movement mainly directed towards philosophy which had then no parallel in the British Islands. The next fellowship but one that fell vacant after Berkeley's election was won by Edward Synge, to whom Hutcheson acknowledges his obligations in the preface to his *Inquiry into the Original of our Ideas of Beauty and Virtue*.* Robert Clayton, who won his Fellowship at a very early age in 1714, was likewise a writer on metaphysics. William King, Archbishop of Dublin, himself a former Scholar of Trinity College, and the author of the well-known treatise *De Origine Mali*, was undoubtedly in close relation to the College (of which he was an *ex officio* Visitor) at this period, and he founded, in 1718, an additional chair of divinity which still bears his name. Dr. St. George Ashe, already mentioned, was Vice-Chancellor during the provostship of Browne, and under such authorities there can be no doubt that the department of philosophy received its full share of attention. I have had some difficulty in judging of the claims of Dublin University in relation to Francis Hutcheson, the second great philosophical luminary of the period. A Francis Hutchinson appears in the list of graduates for 1725. Hutcheson was then in his thirty-first year, and must have already published the first edition of his *Inquiry* (which appeared anonymously), as the dedication of the second edition is dated Dublin, June 19th, 1725. The next two names in Dr. Todd's alphabetical list of graduates are both given as "Francis Hutchinson or Hutcheson" (dated 1745 and 1772 respectively), so that little stress can be laid on the orthography of the name; and as Hutcheson was a teacher and perhaps an expectant professor it is not unlikely that he found it desirable to take a degree, though at a later age than usual. Synge who, the author tells us, not only revised his proofs, but suggested several just amendments in the general scheme of morality, had resigned his Fellowship for a parish in 1719, and the names of Francis Synge Hutchinson and Edward Synge Hutchinson occur so frequently in the subsequent list of graduates (as the latter still appears in the baronetage of Ireland) that I suspect *our* Francis and his friend were relatives. There can be no doubt, however, that Hutcheson was largely influenced by the wave of philosophic thought

* This Synge could not have been the person to whose solution of the problem of the sphere and the cube Molyneux refers in his correspondence with Locke, for he only obtained his B.A. degree in 1709. Synge received the thanks of the Irish Parliament for a Sermon on Toleration preached before them. His admiration of Locke would thus appear not to have been limited to the *Essay*.

that agitated the University during his residence in Dublin, and therefore I think Trinity College may in any event take partial credit for his philosophy. Hutcheson may be now regarded as the acknowledged founder of the Scottish school, and if Berkeley's *Theory of Vision* gave one great impulse to the Association Psychology, Hutcheson's doctrine of Secondary Desires or Passions, proved hardly less fruitful. Indeed it is still from the acquired perceptions of sight or the secondary passions like avarice, that writers of the Association school still derive the leading illustrations of their doctrine. It is probable, too, that Butler had read Hutcheson's *Inquiry* before publishing his famous Rolls Sermons, and perhaps if we had an opportunity of comparing their written with their published form we might discover that these celebrated speculations were not so original as has hitherto been usually taken for granted.* Hutcheson, like Berkeley, built on a Lockian basis, but like Berkeley he everywhere exhibits traces of independent thought. It is singular that, so far as I am aware, no portion of the writings of either of these celebrated Irishmen has ever formed a part of the Trinity College course, though the *Essay* of Locke has never been displaced from the position which it seems to have gained under the provostship of Dr. St. George Ashe.

After Berkeley and Hutcheson severed their connection with Dublin and its university Philosophy languished, and the long rule of Provost Baldwin (1717-1758) seems to have practically led to its extinction. Edmund Burke indeed wrote his *Essay on the Sublime and Beautiful,* and Dr. Hamilton made an attempt to improve on Descartes' *à priori* proof of the existence of a Deity; but the deplorably low condition of both Logic and Philosophy in the early part of the present century, is sufficiently evidenced by Provost Murray's *Compendium of Logic,* which with Walker's (Fellow) commentary still holds its place in our curriculum. The state of Walker's philosophical information may be judged of from his note on Murray's definition of a "Notion (called by the moderns an idea)" as "*repræsentamen rei in intellectu.*" On this Walker cautions his reader that there is no reason to believe that there is any "resemblance between ideas and the things which excite them." "This was a received principle," he writes, "in the Platonic and other schools, but taken up without sufficient examination. Its falsehood was partly perceived by Mr. Locke,

* The Benevolence theory of Hutcheson breaks out in several passages in the Rolls Sermons, though Butler saw reason to modify it before the publication of the *Analogy;* and what is Butler's Principle of Reflection, but Hutcheson's Reflex Sense?

and more fully detected by our most ingenious countryman Berkeley." This sentence was written after the publication of the works not only of Reid but of Stewart.* Judging however from subsequent commentators on Murray, and examination papers set on that work, Walker does not represent the lowest stage of philosophy in Dublin. Not many years ago candidates for honours in Logic in Trinity College were required by one of the Fellows to show that in every legitimate and useful syllogistic mode, if the premisses be false, the conclusion must be false. I have some curiosity to learn how this was proved to the examiner's satisfaction.

I pass on to the year 1834, before which I can discover no traces of a revival, but in that year a great step in advance was taken—the institution of Moderatorships in Logic, Metaphysics and Ethics, corresponding to a Moral Sciences Tripos at Cambridge, and entitling successful candidates to degrees in honours.† To whom we are indebted for this change I know not, but on the Board or governing body of the College at the time were Dr. Henry Wray, who afterwards left £500 to found an annual prize in metaphysics, and Dr. Thomas Prior who, I believe, was a lineal descendant of the friend of Berkeley. At the first of these Moderatorship examinations, William Archer Butler, the author of the eloquent lectures on Ancient Philosophy, which were published after his decease, obtained the first place. Philosophy at this time formed a very important element at the Fellowship Examinations, but, to say nothing of defects in the course, the examination was conducted entirely *vivâ voce*, and the questions were put and answered in Latin. Candidates were very minutely questioned in a small number of text-books some of which were not very apposite to the subject in hand. Indeed in my own time there have been such works in the Fellowship course in Ethics as Butler's *Analogy*, Warburton's *Divine Legation of Moses*, Conybeare's *Revealed Religion*, King's *De Origine Mali*, Cicero's *De Naturâ Deorum*, and Clarke's *Divine Attributes*.

* Murray was Professor of Mathematics in Trinity College, and his reasons for the study of Logic are worth recapitulating. "Whether this art be really of any intrinsic use some have doubted. But since logical terms frequently occur in the writings of eminent authors, it appears altogether necessary to have these terms explained, and therefore the principal parts of the art itself; to do this is the design of the following compendium." The commentator before me (Wheeler) says that the eminent author referred to is Locke (!) in whose writings Walker tells the reader he will be introduced to the "new or modern logic."

† The College Calendar containing among other things a selection from the questions set at the more important examinations was first published in 1833. These questions afford a good indication of the progress in every department since that year.

In 1837 the Board took the further step of instituting a chair of Moral Philosophy, of which Archer Butler was the first occupant. The endowment however was only £100 a year with a five year's tenure of office and possibility of re-election; in which condition the Professorship still continues. These terms have of course prevented any professor from devoting the whole or even the greater part of his time to the duties of his chair, and as his lectures seldom "pay" as well at examinations as those of the Fellows who are appointed to deliver Honour Lectures in the same department, the attendance at them is usually very scanty. I have been informed that the brilliant lectures of Archer Butler were sometimes delivered to a single auditor, who strangely enough afterwards became a violent opponent of the philosophy of Plato—the man whom Butler delighted to honour. Nevertheless, Philosophy at Dublin undoubtedly received no slight impulse from the labours of Butler, who retained his chair until his premature death in 1848. He was succeeded by the Rev. William Fitzgerald, now Bishop of Killaloe, who in the notes to some ethical works which he has edited has exhibited no slight powers of original thinking, but not, I think, a very accurate acquaintance with the writings of some of the philosophers whom he criticises. Of the claims of Dr. Moeran who succeeded at the end of Dr. Fitzgerald's five years I know nothing, but it is certain that during his term of office, the number of senior moderators in the department of philosophy, which had reached seven on several former occasions, gradually diminished until 1857, when no senior moderator was nominated. In that year Dr. Webb succeeded to the chair, which he filled for ten years, and I believe that during those ten years there was a greater revival of philosophic culture in the University than had taken place since that which immediately followed the publication of Locke's *Essay*.* The credit of this revival is not entirely due to Professor Webb. The immense improvements introduced into the Fellowship Examinations in Philosophy (or rather in Metaphysics, for he never examined in Ethics) by Dr. Toleken, about the same time, conduced powerfully to the same result. The Statutes of the College until recently required that these examinations should be conducted exclusively by the Senior Fellows of the College, and the consequence was that the Fellowship Examinations were among the last

* Professor Webb was the first and (so far) the only layman who has occupied the chair of Moral Philosophy—a circumstance which is not perhaps wholly immaterial as regards the cultivation of independent philosophical thought.

to participate in the general philosophical progress of the University.* The examination papers of Dr. Toleken with his *vivâ voce* questions would probably compare favourably with those set at any other examination in the kingdom, and to them in part is to be ascribed the election to Fellowships of such men as Professor Webb himself, Mr. Mahaffy, Dr. Tarleton and Mr. Frederic Purser.

It was perhaps unfortunate that when Professor Webb was promoted to the chair of Civil Law the Board of Trinity College had adopted the principle of confining almost all vacant chairs to the Fellows and other officials of the College. They accordingly elected Mr. Abbott, who is best known for his vigorous attack on Berkeley's Theory of Vision, and its subsequent developments by Mr. Bain and others in a work entitled *Sight and Touch*. Mr. Abbott's genius and erudition have not, I think, been hitherto sufficiently appreciated, probably on account of some defects in his manner of exposition; but with the exception of certain improvements in the Fellowship Course in Ethics, I am not aware that he rendered any service to the College as Professor which he would not have equally rendered in his capacity of Fellow. The alterations in the Undergraduate course in Philosophy which took place at the close of his tenure of office were, I believe, chiefly suggested by Mr. Mahaffy. At the end of five years the Board declined to re-elect Mr. Abbott, preferring the claims of the Rev. Dr. M'Ivor, the present occupant of the chair—an ex-Fellow who had retired on a College living many years previously. Dr. M'Ivor describes his system as "Natural Natural Realism" and "Common Common Sense," and he assails the

* I have in my possession several note-books containing questions and answers in philosophy written out by two candidates for Fellowships, both of whom won that distinction less than thirty years ago, and they are not without interest in showing the manner in which the subject was studied by Fellowship candidates. One candidate writes out 410 questions and answers on Book III. of Mill's *Logic* (evidently the only part of that work in the course), 100 on Book V. *De Augmentis* of Bacon, and 138 on Adam Smith's Sketch of the Moral Systems at the end of his *Theory of Moral Sentiments* (the rest of which work was likewise excluded.) That this minute study of books was not accompanied by a very intelligent appreciation of the systems of the authors is rendered evident by some of the questions and answers which I refer to. Thus, question 73 on Mill is, "What is the general principle of all inductions?" Answer, —"That all inductions, whether strong or weak, that can be connected together by a ratiocination are confirmatory of one another," &c. Again, the general heads to which Mill reduces the import of propositions are spoken of as his "categories," and there is interlined a comparison of them with those of Kant, noticing the omission of Quantity and classing Resemblance as Quality.

Natural Realism and Common Sense of Reid, Hamilton and Mansel, as leading directly to Idealism.*

Philosophy at Dublin exhibits no symptoms of decline. On the contrary the number of Senior Moderatorships awarded in that department last year, eight, was the largest on record, though the number of competing Triposes has been increased from two to six since 1834; and from my personal acquaintance with last year's class of Moderators in Philosophy I do not think they will prove inferior to any of their predecessors either in knowledge or ability. Dr. M'Ivor's lectures and examinations too are calculated to lead to the cultivation of philosophy in a very catholic spirit, especially as he is mortally hostile to Kant, whose philosophy has recently occupied perhaps the most conspicuous place in the Honour course, while, singularly enough, he seems to regard J. S. Mill and Professor Bain with more favour. A word may here be added as to the unusual weight given to the Kantian Philosophy in Dublin during the last fifteen years. The main cause is undoubtedly the care with which Dr. Toleken studied the writings of the sage of Kœnigsberg, and the prominent place which he gave to them in the Fellowship course in philosophy. It was impossible to obtain a high percentage in this part of the work without understanding as well as reading the *Critick of Pure Reason*, and all Fellowship candidates who took mental and moral science as one of their subjects found it necessary

* I believe the only published exposition of the system is to be found in the Notes to Dr. M'Ivor's *Sermons on Religious Progress*. He submitted the leading principles to the Board in a pamphlet form when applying for the chair. The examination papers which he has hitherto set at Moderatorship Examinations in Philosophy are not, in my opinion, free from serious defects. I may perhaps particularise a paper headed "Action" set by him at the Moderatorship Examination of 1874, and published in the Examination Papers which form a supplement to the Dublin University Calendar for 1875. The first four questions in this paper are—"1. 'Nature's Universal Imperative?' 2. Put it in the form suggested by Butler's *Analogy*. 3. Its limits? 4. Kant's Imperative therefore violates it *in limine?*" The remaining questions are of a similar character, all of them pre-supposing and referring to No. 1. Now the professor's lectures did not then form any part of the Moderatorship course, and some of the candidates were non-residents; while the phrase 'Nature's Universal Imperative' did not (nor did any equivalent term) occur in any part of the curriculum. Nor were the remaining questions free from pit-falls, even if the student succeeded in clearing the first fence by a leap in the dark. The intended answer to No. 3, I am informed, was—"it has none," and the violation by Kant was, I believe, meant to be simply that his Imperative *has* limits (though in what sense it is not very easy to see). Some of the questions on Locke, in the paper headed "Cognition" set on the same occasion, will, I think, be new to the admirers of the *Essay on the Human Understanding*.

to give that work an intelligent study. The movement thus commenced was carried on by Mr. Mahaffy, who, though an Irishman by birth, received most of his education in Germany; but the position which Kant now holds in the Moderatorship course is probably rather owing to the favour with which the Board regard the writings of any Fellow of Trinity College, than to any peculiar desire to teach the philosophy of Kant, which in fact was not introduced into the undergraduate course until the publication of Mr. Mahaffy's translation of Kuno Fischer's Commentary in 1866. The post-Kantian Philosophy has met with a less favourable reception though in Mr. Graham, the author of an *Essay on Idealism*, Hegel has found an ardent admirer. But I do not think the Dublin School is in any sense chargeable with exclusiveness. Philosophers of different schools are read and, I think, fairly appreciated.

As might have been expected, Dublin has long since broken its silence in the department of Philosophy. All her professors of moral philosophy,* except Dr. Moeran, have written more or less on psychology or morals, and in addition to them I may mention as writers on philosophy, Professor Maguire of the Queen's College, Galway, Mr. Mahaffy, Mr. William Graham and Dr. MacMahon. Professor Moffett of the Queen's College, Galway has edited a portion of the works of Bacon with valuable notes, and Dr. Tarleton and Mr. Purser have contributed papers on portions of the Kantian Philosophy to *Hermathena*. From our University also issued Mr. Lecky's *History of European Morals;* and, though the writings of Professor Dowden and Professor Tyrrell relate to other subjects, I think the reader will detect in them—especially in those of the former—an undercurrent of philosophic thought which might naturally be expected from the positions which they occupied among the Moderators in Philosophy. Still more directly may the influence of philosophic training be traced in the writings of the late John Elliott Cairnes and of Professor Cliffe Leslie, who occupied a position of equal prominence in the same list.

Undoubtedly then Philosophy has made great progress at Dublin during the last forty years, but a good deal still remains to be done before it is placed in the position which it ought to occupy. I have already referred to the unsatisfactory condition of the only professorship in this department, that of Moral Philosophy, and also to some of the defects in the present

* They were all Dublin men, and Professors Butler, Abbott, Webb, and M'Ivor were Moderators in Philosophy. Moeran and Fitzgerald graduated before 1834.

University curriculum. The style of examination usually adopted is likewise in many respects objectionable. Minute questions turning on the phraseology of the text-books frequently take the place of an examination in philosophy, and too little scope is given for the exercise of original thought. The examiners selected by the Board—always Fellows of Trinity College, except that the Professor is occasionally called in—are not always fully competent; and since Dr. Toleken's retirement, no member of the Board can be regarded as thoroughly qualified for making the selection. Moreover some examiners, whose competence cannot be questioned, repeat their questions (especially their *vivâ voce* questions which are not published in the Calendar) too frequently; and thus a "grinder" or coach of a few years' experience is sometimes able to tell the student beforehand every single question that Mr. Blank will put to him at the examination. Independently of this, no adequate prizes are given in the department of philosophy. In the examinations for almost all the most valuable distinctions—Exhibition, Scholarship, Studentship, and Fellowship—philosophy forms or may form a part: but all of them can be won without it, and none of them can be won by answering in philosophy alone. A man who competed for a Fellowship some years ago stood at the bottom of the list, although his answering in philosophy doubled that of his nearest competitor, and he likewise took the first place in natural science. When I mention that this circumstance was not considered as giving him any claims to the chair of moral philosophy against his Fellow competitors (between whom, I believe, all the votes of the Board were distributed on that occasion), I think it may be said the Dublin student of philosophy has no very inviting prospect to look forward to. A Senior Moderatorship obtains for him a gold medal and perhaps an exhibition of £5 or £10 a year, tenable for three years provided he keeps his name on the books, but it costs him £16. 16*s* a year to do so unless he is a sizar or a scholar. The most that he can receive for any other distinction in this department (except the Wray Prize already referred to) consists of books to the value of £4, but most commonly he only receives a piece of parchment. This state of things I regard as detrimental to the interests of philosophy in the University. I do not contend that philosophy should be placed on the same footing with classics and mathematics; but in my opinion it should cease to be treated as an adjunct, and a few valuable prizes should be awarded for superior excellence in this department alone. Mathematics and classics no less than philosophy would gain by this separation, for under the existing system, while no

amount of proficiency in philosophy will insure success, one who is little more than a smatterer sometimes succeeds in defeating a superior classic or mathematician by taking up philosophy in addition. I have known the first scholarship in mathematics to be won by the worst mathematician among the successful candidates because he scored 95 per cent. in Logic and Locke. This was not only a disappointment to the good mathematicians in the class, but would have enabled the winner to represent himself in a false light to the public had he chosen to do so, and perhaps to obtain some post for which he was totally unfit. And can it be said that answering in (Aristotelian) Logic, even with the recent addition of a part of Mill and Locke, however brilliant, ought to entitle a man to a scholarship in philosophy? If not, the sooner this anomalous state of things is put an end to the better.*

W. H. S. Monck.

* It is not easy to give in a small compass an accurate account of the amount of philosophical study required at the various examinations. The course compulsory on all students consists of Murray's *Compendium of Logic*, selected portions of Locke's *Essay*, and about 120 pages of Mansel's *Metaphysics*. A Moderatorship in any department qualifies the candidate for a degree in honours, but all other candidates for the B.A. degree are examined in Stewart's *Outlines of Moral Philosophy*, Butler's *Analogy*, Part I. caps. iv. v. vii. and Part II. (omitting cap. vii.), with Paley's *Evidences*, Part I. Candidates for classical scholarships are examined in a portion of Mill's *Logic*, and candidates for mathematical scholarships in a larger portion of the same, together with the selected portions of Locke and Part I. of Mansel's *Metaphysics*. The Fellowship course is variable from time to time at the discretion of the examiner, and is never published in the Calendar. It is considerably more extensive than the Moderatorship course, and in addition to the authors mentioned in the latter a good deal of weight has been given at recent examinations to the writings of Mr. Hodgson. The Moderatorship course for the present year is as follows: Metaphysics—Locke's *Essay*, Mansel's notes to Aldrich's *Logic*, Mansel's *Metaphysics*, Hamilton's *Lectures*, vol. I. and II., Mill's *Examination of Hamilton* to the end of cap. xiv., Mahaffy's *Critical Philosophy for English Readers*, Vol. I. and Vol. III. omitting Appendices A, B and C, Schwegler's *History of Philosophy* to Kant inclusive; Ethics—Aristotle's *Nicomachean Ethics*, omitting Books iv. viii. ix. x., Butler's *Analogy*, omitting Part II. caps. 5, 6, 7, Butler's *Sermons* and *Essay on Virtue*, Mackintosh's *Dissertation*, Kant's *Metaphysic of Morals*, translated by Abbott, omitting pages 123-209, Mill's *Utilitarianism*, and the Lectures of the Professor of Moral Philosophy. For the Wray Prize, a portion of Bain's *Senses and Intellect* is included.

Additional Note.—Since the foregoing article was written the University Council has passed a resolution removing Logic from the course for Classical Scholarship. The course for Mathematical Scholarship remains unaltered. An attempt was made by the two members of Council who had obtained the highest distinctions in Philosophy to modify the course for the ordinary Degree, but without success. The Lectures

VIII.—CRITICAL NOTICES.

Moral Causation: or Notes on Mr. Mill's Notes to the chapter on "Freedom" in the Third Edition of his "Examination of Sir W. Hamilton's Philosophy." By Patrick Proctor Alexander, M.A. Edinburgh, 1875.

Among the counterblasts to Mill's book on Hamilton was an essay by Mr. Patrick Proctor Alexander, of Edinburgh (*Mill and Carlyle*), devoted chiefly to the chapter on Free-will. In the third edition of the *Hamilton*, Mill included, among his replies to critics, several foot-notes of some length dealing with Mr. Alexander's positions. In a new work entitled *Moral Causation*, Mr. Alexander rejoined; and he was surprised at finding that Mill, while answering two other rejoinders in the fourth edition, did not notice his. He now reprints *Moral Causation* revised and extended. Among the shoal of writings on the Free-will question, this is one that well deserves perusal; both from the acuteness of the reasonings, and also from the vivaciousness of the style, which is turned to account not merely for literary effect, but for giving clearness and point to the author's meaning. He puts in a strong light every appearance of a flaw in Mill's reasonings and modes of expressing himself; showing the advocates for necessity (or Determinism) what are the real or seeming weaknesses of their side.

Admirable as Mill's polemic is, in that chapter of the *Hamilton*, I do not think that he is sufficiently aware of the unsuitability of the current modes of describing the operation of the will. It is by accepting these unsuitable forms that he lays himself open, in my judgment, to the thrusts of an acute and determined critic like Mr. Alexander.

When I find both Professor Calderwood and Mr. Alexander strongly maintaining that Free-will does not mean "uncaused volition," I feel myself obliged to admit that the controversy has made a very great advance, if, indeed, it be not absolutely ended. As a problem of the psychology of the Active Powers of the mind, all that I have ever contended for is that our actions are governed by our feelings, as motives, according to the law of uniformity of sequence; so that the same situation as regards the feelings is always followed by the same voluntary action. As against any one fully conceding this, my opposition seems to be at end. Mr. Alexander wishes to make out that this has been generally allowed by the advocates of Free-will. He endeavours to explain away some very strong expressions to the contrary made use of by Hamilton:—"A determination by motives cannot, to our under-

of the Professor of Moral Philosophy were introduced into the Moderatorship course by the Board, after the issuing of the Queen's Letter constituting the Council, and declaring that no change in the curriculum could be made without its sanction. The Council has never sanctioned the change, but no objection has as yet been raised by the competitors.

standing, escape from necessitation. Nay, were we even to admit as true, what we cannot think as possible, still the doctrine of a motiveless volition would be only casualism; and the free acts of an indifferent are, morally and rationally, as worthless as the pre-ordered passions of a determined will." From this and other passages it would appear that Hamilton considered that "causeless volition" was an admissible statement of the Free-will doctrine; and it would be highly satisfactory to be assured that this mode of putting it is no longer admitted on either side. For the difficulty then will be to find out what, if any, is the remaining difference.

Mr. Alexander's first issue with Mill is as to the meaning of our being conscious of our freedom, or our ability to act freely, but I prefer to dwell upon the second issue, which contains the kernel of the dispute in one principal aspect. He puts to Mill the question, "Whether having touched the left side of his nose, Mr. Mill did not *feel*, that he could have willed to touch, and have touched, its right side?" He complains that Mill declines to give a simple "yes" or "no," but answers it thus: "I could have touched the right, had I so willed it; and should have so willed, if *there had existed a sufficient inducement*, not otherwise." Now Mr. Alexander may think this a plain question, admitting a plain answer; but, for my own part, I would have declined answering it in any form. Moreover, I do not consider that any step would be gained on either side by answering it, either with or without a qualification. My reason is that it contains two terms that need in the first instance to be defined; while the question in dispute would be equally raised in the act of defining these. The first is the term "could," or its equivalent, "ability," "power." The meaning of this term is pretty well agreed upon, as being simply "what will happen in certain circumstances:" it is Aristotle's potentiality as opposed to actuality. "I am able to walk across the room," means that in a certain state of mind I do walk across. When I am asked, could I have touched the right side of my nose at the time when I touched the left? the meaning is simply this, would I in some definite state of mind have actually touched the right? To answer this in the affirmative would not commit me either to Free-will or to Necessity. The discussion would merely be shifted to another point, namely, what is the state of mind that would have been followed by my touching the right side? Was it the identical state of my feelings that was followed by my touching the left side, or a different state of feelings? Most probably we should suppose the state of feeling or else the intellectual direction given to the feeling was distinct, but what the distinctness consists in is really the whole matter at issue.

But the vagueness of the question appears in another way; namely, what is meant by "I." Libertarians and Necessitarians, in the fight that they make over this word, reveal their hopeless discrepancy of opinion. In one view, "I" is the conjunction of the facts of Mind, as analysed into Feeling, Volition and Intellect, and coupled with a bodily organism. In Mr. Alexander's view this

is not all: there is behind a "mystery of the human personality," which it is not permitted to us to analyse farther. With such a reservation in the background, what "I" could do or not do, is very little to the purpose. My motives I know, but a personality transcending my motives, yet coming in as a make-weight in my decisions, I do not know.

Another point of difference between the contending parties, even after they have agreed upon the reign of law in human actions, is connected with the "Moral Consciousness" and "Moral Responsibility." It was with reference to these two notions, that Hamilton postulated Freedom notwithstanding its being in itself inconceivable.

It seems to me, on the other hand, that the meaning and scope of Moral Consciousness and Responsibility should be argued apart from the Freedom of the Will. The divergence of opinion on the subject turns upon a distinct class of considerations. It is averred by one party that "moral," in the sense of right and wrong, is based upon prohibitions enforced by punishment; and that its essential meaning all through must have reference to this fact. It is fully allowed, and carefully explained, that the moral sentiment or conscience, in the better portion of mankind, contains an element of love, good-will, and spontaneous beneficence; but not so as to disguise its real foundations. For when we ask why a thing is right, and not simply benevolent, we must descend to the circumstance of enforcement by some lawgiver. In opposition to this, it is contended by Mr. Alexander and others that this *legal* interpretation ignores and pushes out the *moral* point of view. It may be so; yet that particular debate should be conducted, not under the Free-will controversy, but under the controversy as to the nature of Conscience: I do not see what either Freedom or Necessitation has to do with it. In responsibility to God or to man, I for one see everything that is distinctively meant by "moral;" those that hold otherwise need not introduce free-will in order to say what "moral" is or includes, over and above the legal constraint, real or imagined.

The question of Free-will against Necessity is far more apparently implicated in one aspect of Moral Responsibility—the *just grounds of punishment*. This is a very mixed problem; and the part of it that bears strictly upon the character of the Will seems to me the least difficult. If a man's conduct is ruled by motives, the way to control him is to supply such motives; if he is not to steal, make the act of stealing so painful in its consequences as to overpower the pleasurable attractions. As the adaptation of means to ends, this seems a plain course, in the strictest view of necessity. The intervention of Freedom, in the sense of conduct beyond the scope of motives, or springing out of an unfathomable mystery of Personality, might introduce perplexity into the calculation; but the necessitarian sees no such puzzles; and, to this extent, legislators and governors of men, in all ages, have declared for Necessity.

This is the deterrent view of punishment. There is another view,

the reformatory, that comes so far under similar considerations. The difference seems to be, that in the one case the good of the society, *minus* the evil-doer, is sought; in the other, the evil doer is specially considered. A humane sentiment is evoked, by which we are led to regard criminals as partly wicked, and partly unfortunate. To justify this last supposition, we adduce their bad education, their overpowering temptations, their weakly constituted moral nature; and while obliged to punish them, we also pity them; and we may carry our pity so far as to doubt whether they are *justly* punished. Robert Owen would say that such men should be educated and not punished. But he probably did not deny that punishment has, *de facto*, the effect of keeping people out of crime: and I am not sure that he knew whether he was a Libertarian or a Necessitarian: we may call him simply a Humanitarian.

Mr. Alexander is at special pains to make Mill self-contradictory as to the justice of punishing men apart from Human Freedom. I fully admit the difficulty of realising justice in the matter of punishment, but I cannot see that the doctrine of Necessity makes the difficulty, or that the doctrine of Freedom relieves it. Supposing I were to adopt Freedom to Mr. Alexander's entire satisfaction, I should have still to reconcile punishment with abstract justice; in fact, I should have equally to perform that nearly, if not quite, impossible feat.

It is at this point that Mr. Alexander makes use of the "moral" as opposed to the forbidden or the legal. He finds in the existence of guilt or *moral* desert, a justification of punishment; but as the "moral" in my opinion grows out of the legal, although it may be considerably transformed, I cannot see any special force in the use of this word. Even if I were to try and agree with him here too, and were to believe in a doctrine that I cannot understand, I should still have my difficulties about punishment the same as ever. I should be puzzled to draw the line between guilt as "moral" and guilt as merely "legal." More particularly, I could not get over Owen's difficulty of punishing a man that was deplorably ill-educated, as most criminals are. After taking the utmost benefit of Free-will and Moral Desert, I am bound to confess that punishment is a very rough expedient, and falls most unequally. It is essential to the existence of society, and that is its prime justification. It does not answer its purpose unless conducted according to general rules, and under these many a man is victimised. Take the case that shocked George Combe; punishing "as an example." Neither Free-will nor *moral* guilt will palliate this enormity. It rests upon nothing but the *ultima ratio* of social security; for the sake of which we often seize a perfectly innocent person, peril his life, or subject him to any amount of misery. The man has committed a small offence, a mere inadvertency; there is some great danger apparent; and he receives the punishment of the worst felon.

It would take a long chapter to express all the difficulties and anomalies connected with punishment; but while some of them appear to me to be aggravated by the hypothesis of Freedom (so

far as I can understand the meaning of it), some of them are smoothed by it. The proper working of a penalty is to make everybody abstain from the act; ninety-nine out of a hundred are in such a healthy condition of the will that they do abstain. The hundredth person commits the act. Might we not throw the blame upon his antecedents? Might we not say that any one of the others in his situation would have erred? Yet the penalty must be inflicted. Its efficacy in keeping the ninety-nine straight depends upon its being applied to the hundredth; that is enough for us. We desire to make allowances in certain cases, if we think that the effect upon the mass will not be impaired. Nobody could state the nature and extent of these allowances better than Mr. Alexander does (pp. 206-7). He tells us truly enough that in the mass of cases criminal justice cannot take account of the state of mind of the offender, "because we are incapable of doing so with any approach to scientific accuracy, and because criminal legislation can only proceed by a general rule of particular penalties attached to particular acts." Hence we inflict punishments that we can with difficulty reconcile as just in the individual case. But what has all this to do with Free-will? The consideration that interfered with the justice of the punishment is that the individual punished was morally weak; that his motives, including the fear of punishment, were not strong enough to keep him right; and if he had only had average advantages in respect of constitution and education, he would not have gone astray. Now, it seems to me that this is to state his case exactly in terms of Necessity, and not in terms of Free-will.

Justice in punishment seldom goes beyond proportionality to the mischief inflicted. This is the just idea in men's minds; and it points rather to retribution than to prevention. Prevention comes into the court, when the prevalence of the offence is looked at; and in this view the comparative ill desert of the criminal goes for very little. A very wicked man will get off more easily, if the offence is not likely to be repeated. In a word, punishment is nine points expediency or utility, and one point justice. It deals with the "legal," as opposed to the "moral" (if there be an opposition); and it works in the sphere of the necessitarian's "motives," and does not seek to penetrate the recesses of the libertarian's "personality."

Mill endeavoured to draw a distinction between Necessity and Fatalism, which Mr. Alexander believes he has triumphantly demolished. The weakness of Mill's position is still the giving way to inappropriate language. To say "we can improve our character, if we will" is at least an infelicitous rendering of the cause of self-improvement. An opponent can ask, Why don't we will? The answer is, there are not sufficient motives present. Why are there no motives? Our constitution and our antecedents have been unfavourable to the growth of the motives. How is this to be distinguished from Fate or Fatalism? A pure deadlock.

This suggests another remark on the origin of the Free-will

difficulty. To a person watching the conduct of a number of human beings (they being unaware that they are noticed), the sequence of motives and actions would not present any puzzle beyond what is due to mixture and to occasional concealment. The supposed observer will witness the occurrence of motives—hunger, cold, ease, society, applause—and he will see the actions that they prompt in each individual; he will farther see great differences in the influence of the same motives on different subjects; he will see some inclined, some disinclined, to rectitude. If he continues his observations over a long interval he will discover cases where the bad have been restored to the paths of virtue; and he will perhaps be curious to know what has made the change. If his means of knowledge and his sagacity are considerable, he will be able to bring those changes under the general laws, already traced by him, as to the operation of motives. He will compare the reforming individuals with some that are still going to the bad; and may probably be able to suggest some influence that, if brought in among the existing motives, would reform some of these last. If he were a philanthropist as well as an observer of human nature, he might endeavour to bring to bear the missing power; or, it might be, to withdraw some countervailing influence in whose absence the scale would be turned to virtue. Is there any fatalism in all this? Whether it be fatalism or no, it is recognised use and wont.

The simplicity and intelligibility of the situation is complete only so long as the observer and the observed are different; and so long as the observed are unconscious that any one is observing. Let now the observer announce himself as watching the moral conduct of the subjects under his eye. Let him come forward personally to take a part in strengthening their virtuous tendencies. If he is very guarded, he may still preserve an intelligible and straightforward course. He may caution the evil-doers by bringing before them the bad consequences of their evil deeds. He may also encourage by fair promises, and so on. But now let him adventure upon a colloquy, to this effect:—A. "Why do you allow yourself to be a victim of intemperance?" B. "I know that it is wrong, but I cannot help it." If A is wise, he will read him a fresh homily on the evils of intemperance and the blessings of sobriety: if he is unwise, he will say, "You can help it, *if you will;* you are a *free* agent." This is a real puzzle, both to the man himself, and to everybody else; and is on the high-road to the mystery of free-will.*

A worse stage is reached when a man begins to interrogate himself as to what he might, could or would do in the unfortunate attempt to become "conscious of freedom." The situation becomes too complicated for any language that has yet been invented: in

* Although the language—"You can, if you will," is unsuitable in the point of view of psychology, it is not devoid of persuasiveness. It is an appeal to the man's pride or feeling of dignity. The noblest passage in the *Castle of Indolence* is addressed to the sentiment of pride through the supposed omnipotence of will.

trying to express it in terms of Necessity, we can hardly avoid contradictions; and the Free-will advocate knows how to make capital out of the perplexity. In point of fact, however, the circumstance of looking into one's mind, ought not to alter the essential workings of mind; what is true from our observations of other men, should be true of ourselves. We ought, no doubt, to see ourselves as others see us, but this is a hard task; the seeing and the seen become inextricably confounded. Now when we wish to study the laws of a difficult phenomenon, we prefer to look at it in the most advantageous, and not in the least advantageous light. All the laws of the mind must be in full operation in a man that is observed by some other man; what is true of the individual so observed must be true of men generally; and, if we cannot see the phenomenon in the same clear light when we observe ourselves, we should blame the awkwardness of our point of view, and not declare that a novel phenomenon has been generated. The self-examination does not alter the facts of human nature; it can only alter our perception of them for the better or for the worse. I maintain, therefore, that the theory of the Will that would be framed in the observation of human beings by an observer apart, is most likely to be the true theory; and that a puzzle arising only when we are both observer and observed is purely factitious and undeserving of serious regard.

A. Bain.

Théorie Scientifique de la Sensibilité. Le Plaisir et la Peine. Par Léon Dumont. Paris, Germer Baillière, 1875.

In this work M. Dumont undertakes the very important task of constructing a complete theory of Pleasure and Pain, and of making this principle the basis for an exhaustive classification of their several kinds. He justly remarks that the subject has not received the attention which it deserves. Psychologists, as a rule, do not make the distinction between pleasure and pain a leading principle of division in their classification of the feelings, but rather distinguish these according to other qualitative peculiarities, those of the several orders of sensations and emotions. On the other hand, the conditions of pleasure have generally been studied by writers on æsthetics, that is to say in connection with one department only, even though a very important department, of pleasurable sensibility. M. Dumont forcibly contends that the pleasures of beauty and of art can only be completely elucidated through a study of pleasure as a whole.

The author appropriately commences the first part of his work, the General Analysis, by a critical review of the principal theories hitherto propounded on the subject. He divides these into four main groups: (1) the doctrines of the Epicureans and the modern pessimists, which regard pleasure and pain as depending exclusively on the phenomena of desire and volition; (2) the doctrines of Wolff and of the Cartesians, which agree in referring them to an

intellectual phenomenon or a judgment; (3) the Platonic view, shared by Aristotle and certain modern writers, which connects them indiscriminately with all modes of activity, though it refers them to the *quality* of the activity and to an absolute type of perfection; and (4) the 'relativist' theories, more or less distinctly propounded by many modern writers, which, while connecting them as the foregoing with all modes of activity, make them depend solely on the *quantity* of the forces and movements which constitute the individual.

M. Dumont then proceeds to define his own theory of the subject, which he considers to be simply a more exact form of the last-mentioned or relativist view. Thus he improves on Hamilton by saying "that there is pleasure whenever the *ensemble* of forces constituting the *ego* is increased, provided this increase is not large enough to produce a movement of dissociation of these same forces; there is pain, on the contrary, when this quantity of force is diminished." He goes on to say that he places the condition of pleasure not in the expenditure of force but, on the contrary, in the fact of receiving it, and accordingly he contrasts his view with that of Professor Bain, which, by connecting pleasure with an increase of some or all of the vital functions, really makes it dependent on an expenditure, that is a diminution, of force. His theory receives a good deal of fresh illustration in connection with the classification of pleasures and pains, and our estimate of it may with advantage be postponed till we deal with this part of the subject.

Having thus defined the conditions of pleasure and pain, and shown in an interesting way how completely this view establishes the relativity of the phenomena, M. Dumont gives us a curious chapter or two on the metaphysical aspects of pleasure and pain. This part of the work, like certain portions of M. Ribot's work on Heredity, illustrates a powerful resistance on the part of scientifically trained French minds to the demands of the extreme positivists. First of all, pleasure and pain are said to be the consciousness or subjective face of the composition and the separation of forces. Again, our state of sensibility at any given moment is single, though there are numerous elementary sensations entering into the state of consciousness of the moment. The sum of pleasures and pains arising from the many augmentations and diminutions of force at the time blend in one total state, which may be either a preponderance of pleasure or of pain, or a neutral condition. This fact, which strikes one as far from being incontestable, appears to M. Dumont to have a close bearing on the existence of a substance of mind and of a universal substance, which he is prepared to accept on other grounds as well. Once more, the author considers that his conception of pleasure and pain, as the subjective aspects of the actions of forces, necessitates the conclusion that sensibility is coextensive with force, and that no mode of material existence is absolutely without some analogue of the subjective face or conscious-

ness.* The author hardly presents the argument for the universal correlation of movement and feeling quite accurately when he urges that "unknown existence must be supposed to be analogous to known existence till the contrary is proved." The "unknown" existence which is here referred to, for example, the inorganic world, is known to differ from existence which is admitted to be conscious in certain respects, and the real question is whether these differences involve a further dissimilarity in the absence of a concomitant consciousness. Another argument of M. Dumont is somewhat more plausible. He extends the principle of the conservation of energy to mind and contends that mental existence cannot arise without a previous mental existence.

We now reach the second part of M. Dumont's treatise, the Special Synthesis, in which he seeks to apply his general conception of the conditions of pleasure and pain to the several well recognised varieties of pleasurable and painful feelings, including the æsthetic sentiments. It is here that we can best judge of the scientific value of his main thesis.

Pleasure being the accompaniment of an increase of force, pain of a diminution, these emotions will have to be classed according to the various modes of this increase and decrease. Now, "the diminution of energy, from which pain results, takes place either in a positive or in a negative manner: positive, when it follows from an increase of expenditure or of activity; negative, when it consists in a suppression of excitation, of reparation or of vital reaction." Thus we have two main classes of pains: (1) those which depend on an excessive loss of force; (2) those which result from an inadequate supply. Similarly there are two principal divisions of pleasures: (1) positive, which arise from an increase of excitation, and (2) negative, which depend on a previous diminution of expenditure and a resulting accumulation of energy.

The positive pains comprehend those of effort and fatigue, as well as the effects of the ugly, the disgusting, the immoral, &c. M. Dumont includes these last phenomena on the ground that they depend immediately on the excessive effort of thought which is involved in the conception of such objects as contradict our customary associations. The negative pains again comprise, first of all, the sensations of feebleness and exhaustion which arise from insufficient nutrition and reparation, and secondly, "pains" in the narrow sense, that is to say, such as have their origin in injuries to the tissues. The author refers the pain in these latter cases to the detachment from the system of a number of forces which were previously connected in reciprocal action with certain of the remaining

*Another curious conclusion which M. Dumont draws from his metaphysical interpretation of pleasure and pain is that these opposed phenomena are always exactly equals in quantity. This co-ordination of a doctrine midway between optimism and pessimism, with the conception of universal sensibility, should be compared with Hartmann's method of connecting his pessimistic conclusion with much the same conception.

forces, in consequence of which these latter have to act without compensation or reparation. Next follow the negative pains of the intellect, such as *ennui*, doubt and impatience. These effects depend, according to M. Dumont, like the pains of bodily hurts, on an insufficiency of reaction, on the sudden arrest of a certain quantity of force put into action in the shape of a desire or expectation. Of a similar character are the negative pains of the heart, namely, chagrin, fear, sadness and pity, all of which are referred to a frustration of desire.

The contents of the two classes of pleasures are of very unequal extent, the positive being greatly in preponderance. Under the negative pleasures we have, first, those of relief and repose, which arise from a cessation of a positive pain, and, secondly, those of gaiety, which are experienced after energy has been accumulating through an excess of supply over expenditure, and, as a consequence of this, a disposition has been generated to seize the first opening for activity of any kind. The positive pleasures are subdivided into two classes: (*a*) those depending on an action of external objects, sensuous enjoyments, and (*b*) those resulting from an internal excitation by the passage of a certain quantity of force from the unconscious to the conscious regions of the organism. The latter division includes the pleasures of reflection, meditation, those of imagination or of taste, and those of the heart, namely, joy and hope.

Every reader will recognise that M. Dumont has here made a very creditable attempt to frame a truly "scientific" classification of pleasures and pains, and no candid critic will deny that he has shown great ingenuity in working out its details. Yet the result cannot, I think, be called quite satisfactory. There seems to be a certain want of scientific clearness in the very groundwork of the classification, and, in addition to this, many of the phenomena look as though they were quite arbitrarily forced into places to which they do not naturally belong.

First of all, then, it is not very clear what M. Dumont means by *force* when he defines all pleasure as depending on an increase of force. This seems to mean one of two things, either an increase of potential nervous energy or an augmentation of nervous action or excitation. The pleasures of sensuous stimulation cannot be said to be an increase of force in the first and more natural signification of the term, for some quantity of the store of potential energy is obviously expended in the process. If we adopt M. Dumont's classification of pains as complete, we may no doubt reduce all the phenomena of pain to a depression of nervous energy or to an exhaustion of the nervous substance, but I fail to see how the author is to bring his various orders of pleasure under one simple principle such as he formulates.

In the second place one might object to some of the details in M. Dumont's grouping of the pleasures and pains. Sometimes the division of the groups is not exact enough to be scientific. For instance, the positive and negative pleasures are not sharply separated,

The gaiety which flows from a rise of nervous energy implies the presence of stimuli as well, and were such stimuli wanting the accumulation of energy would become the direct cause of pain. This objection points to the fact that pleasure has as its combining conditions a certain supply of nervous energy and an adequate stimulus for raising this energy to the form of nervous excitation. Again, some of the classes do not appear to be referred to a right principle. For example, to bring the pains of bodily hurts and those of doubt and fear under one set of conditions strikes one as a somewhat violent proceeding. Still again, the author hardly inspires confidence when he refers the pains of embarrassment, etc., to an insufficiency of reaction, overlooking the influence of the bare fact of discordance among mental states; and his resolution of the pains of the ugly and the disgusting into a mode of fatigue (occasioned by the extraordinary effort of conception required) looks very much like the invention of an imaginary cause when a real one is sufficiently apparent. Finally, M. Dumont's classification strikes us as incomplete in one or two particulars. It assigns no place, for instance, to the pleasures of harmony. It may be added that he discusses, but hardly accounts for, the pains which accompany certain sensuous stimulations in all degrees, such as bitter tastes.

In the discussion of the nature and characteristic accompaniments of the several orders of pleasure and pain M. Dumont is always ingenious and often very happy. The most original contribution in this part of the work is the treatment of the very difficult question of the ludicrous. M. Dumont argues, against Mr. Darwin, that laughter must be rigidly separated from smiling. He sets out with the effect of tickling on which he has made some valuable observations. He finds that in all contacts and movements over the bodily surface which produce laughter there must be a certain irregularity as to the part touched, the intervals between the contacts and the direction of the moving hand. Combining these facts with the common observation that people are unable to tickle themselves, we conclude that the effect depends on a mental process, namely, a frustration of expectation. Similarly, he thinks, all other cases of laughter may be resolved into contradiction between our pre-existing ideas or anticipations and our present perceptions. The two "contradictory" forces brought into play cannot converge in a single conception, and are consequently obliged to flow off into other channels, namely, those of muscular activity. The contradiction in the case of the ludicrous does not give pain as in that of the ugly, since there is no triumph of one idea over another but only a double excitation of the mind which involves an augmentation of force. This theory which, as the reader will see, approximates in some points to that of Mr. Spencer, is very ingeniously conceived and worked out, though it seems to me, like most other single principles, to fail to account for all the phenomena of laughter.

After discussing the various pains and pleasures in detail, M. Dumont expounds the laws of emotional expression. He has some

good remarks on Mr. Darwin's principle of antithesis which he is inclined to reject on the same grounds which the present writer has elsewhere put forward, and he is very clear in showing that the characteristic expressions of pleasurable and painful emotions illustrate an exciting effect in the first case, and a depressing effect in the second. Among the remaining chapters there is one on the relation of pleasure and pain to volition which is not a little curious. M. Dumont denies that pleasure or pain in any form can be a motive or cause of volition, and urges that when we consciously pursue pleasure as an end it is the love of pleasure, that is to say, a certain instinct or impulse, which really determines the action. But the author's view is not sufficiently developed for us to be able to appreciate its full significance.

JAMES SULLY.

Grundzüge einer Extensionalen Erkenntnisstheorie. Ein räumliches Abbild von der Entstehung der sinnlichen Wahrnehmung. Von H. CZOLBE. 1875.

The above work, published after the author's death by his friend and biographer, Dr. E. Johnson, is but the first part of an exhaustive treatise which Czolbe intended to contain the matured results of his own speculation and at the same time to be an exposition of the ultimate metaphysical theory of the late F. Ueberweg. It gives, however, the groundwork of the system, and is sufficiently complete to enable some estimate to be formed of its meaning and value. The work has a double interest, as the final production of an original and acute intellect, and as the first satisfactory account of Ueberweg's speculative principles, about which there has always been doubt, even after the remarkable notices by Lange and Dilthey. The entire treatise, according to the author's design, was to bear a title—*Space and Time as the one Substance of the Infinite Attributes of the World*—which indicates very clearly the nature of its contents.

The formal principle of Czolbe's speculation, in this as in his previous works, is the desire to render clear to the imagination or pictorial faculty all the connections of things which make up the universe. Intelligibility with him means capability of being pictured in *Vorstellungen*. Whatever cannot be expressed in *Vorstellungen* must be banished from philosophy as irrational, inconceivable. Czolbe rightly names this principle the mechanical, and by its means he claims to have disclosed a new relation between philosophy, mathematics and natural science. It is evident that the connections of things could not be pictured or represented in *Vorstellungen*, if the ultimate realities were themselves unextended; Czolbe, therefore, in order to satisfy his formal principle, has to prove in opposition to Herbart in particular that all ultimate realities are extended, and in opposition to psychologists in general that mental phenomena are also extended. The second of these problems brings him face to face with the theory of vision, in which, he says, lies a whole system of philosophy. Great part of the present work is taken up with

an acute criticism of Helmholtz's empirical theory of the origin of our idea of extension, and Czolbe's remarks deserve the most careful attention both from psychologists and physiologists.

Of the six sections into which the work is divided, the first four contain the groundwork of the theory, and we shall here content ourselves with a brief summary of the results attained. Section I. gives the proof that all sensations (*Sinnesempfindungen*) are extended substances, endowed with two attributes, consciousness and specific quality. The author starts from the position that our knowledge of material objects is mediated by the causal judgment, which, like other so-called Laws of Thought, is a generalisation from experience, and has necessity only because it mirrors a real connection among things. This causal judgment compels us to suppose some cause for the changes that take place in the representation of our own person, to suppose that there is a subject. We are also driven to the supposition of causes other than the subject, to natural objects whose actions give rise to perceptions. Of such perceptions, it is manifest, Czolbe thinks, that those of sight and touch are spatial, or extended in three dimensions. He offers no proof save the assertion that a geometrical plane cannot be *thought* otherwise than as located in space, *i.e.*, as having space before and behind it. With regard to sounds, smells and tastes, these are not geometrically mensurable, but they are not on that account to be thought as unextended. They are obscure because their limits cannot be brought clearly into consciousness, which results from the anatomical structure of their respective organs. All perceptions are composed of complexes or groups of separate points of sensation, corresponding to the mosaic-like arrangements of the nerves of sense. But these sensation-points are themselves extended; they cannot be thought as mathematical points, for these involve the notion of the space in which they lie. Every sensation must have extension in three dimensions; it is impossible, unthinkable, to construct the extension of space out of unextended elements. But each extended sensation has two properties, that of being consciously perceived and a certain specific quality. Consciousness (*Bewusstheit*) is simply a quality of so-called psychical facts; by abstracting it we attain a true knowledge of the characteristics of the objects which mirror themselves in our representations. This view of consciousness is the πρῶτον ψεῦδος of Czolbe's theory. A more careful consideration of what is involved in consciousness would have cleared up many of the difficulties in a theory of space, and would have prevented the confusion of psychological fact and ontological inference. No explanation is given of this quality, consciousness, about which we should have wished some information; and matters become even more complicated when we are informed that attention directed towards the representation of one's own person is self-consciousness! Out of such self-consciousness there grows up gradually the notion of our physical and psychical personality, otherwise called conscious self or *Ego*. This *Ego* is in no way to be identified with the subject which we are

bound to suppose as the cause of certain changes in the representation of our persons. These extraordinary results are due to the author's neglect of a principle which he might have learned from his revered master, Lotze, that no mechanical addition of psychical elements will ever produce the unity of self-consciousness. Nor is the fact that consciousness of self grows and deepens at all incompatible with its primitive unity.

In the Second Section the author brings forward more prominently than in his previous works the notion of space. By abstraction we form the idea of a vast blank extension. But this representation must mirror some reality. There must be *in rerum naturâ* a vast space in which all things are. Such space, however, is not to be looked upon as a receptacle in which things are placed, but rather as pure continuity interpenetrating the universe, the *Grundlage*, *fundamen*, or mother-matter of all things. We must also think this vast space as enduring, as permanent, and time may be legitimately defined as its fourth dimension. The combination of space and time is the one and original substance of the world, in which all qualities exist, and which manifests itself in the multiplicity of things. In this way Czolbe thinks he has given an empirical interpretation of Spinozism.

The Third Section discusses the origin of sensations and representations. Conscious sensations, if we may use such an expression, are only quantitatively distinct from those called unconscious. The psychical elements attract one another or concentrate; and, as we can have a clear picture of this process only if it be truly mechanical, it must be supposed that the concentration is a veritable thickening, and that the attractive force is a species of magnetic action. As consciousness arises out of unconscious sensations, these must be pre-existent in the brain in order to be excited. And, as it again falls back into unconsciousness, it is evident (?) that the sensations must be both elastic and in continuous connection with one another. From the continuity it follows that sensations are not contained in the brain, which is composed of discrete atoms. Further, as continuous unconscious sensations can only be thought as infinite, there must be diffused throughout the whole universe an elastic sensation-substance or World-Soul. To this strange conception of the diffused world-soul Czolbe was driven by criticisms on his earliest work, *Neue Darstellung des Sensualismus*, in which it does not occur. By means of it something exceedingly unlike the origin of consciousness may be pictured, but there is not a ray of light cast on the difficulty. After all, these mechanical explanations are nothing but analogies, and should never be accepted as solutions. What possible advantage is there in saying that a conscious sensation is roused by the mechanical excitation of an unconscious sensation?

Czolbe has thus posited two ultimate elements, Space in four dimensions, and a World-Soul. In the Fourth Section, we reach a third element. The causal judgment compels to the admission of natural objects, which give rise to representations or pictures. These objects must be tri-dimensional and in time, of various mag-

nitudes and so on, corresponding to the pictures of them. Physical researches lead us to the conclusion that real bodies consist of atoms, small extended particles, which may not be indivisible in imagination, but are undivided and not interpenetrable. As these atoms cannot of themselves originate motion, they must be endowed with force. Forces must be regarded as penetrable substances, surrounding the atoms and extending in space. Action at a distance, cohesion and attraction can only be explained on this hypothesis. It is not probable that physical science will bear out the somewhat rash speculations indulged in by Czolbe in this part of his work.

The ultimate realities in this theory of the universe are, accordingly, the World-Soul or diffused mass of unconscious mental stuff, the world of Atoms endowed with forces, and the Space in which these have their being. By means of these elements a clear, mechanical explanation of natural processes may be attained, and philosophy will become an ideal science. The results of the theory do not appear in the present work, and we shall look for them with some impatience.

The two concluding Sections treat of the mechanism of sensation and of the field of vision. In both important contributions are made to these difficult problems, and in both the author's peculiar boldness in pushing his principles to their logical result is apparent. Especially remarkable is the discussion of visual space. After careful discussion, Czolbe localises the field of vision in the region of the optic thalami and corpora quadrigemina, where there is anatomical provision for combination of the two fields of vision, and where resides a peculiar force or complex of forces which mirrors the retinal picture. Now the field of vision is very large, and therefore the portion of the brain where it is located must be equally large. Czolbe admits the consequence at once. Our real brain is colossal and extends as far as the field of vision. So with our real hand and with every real object. All are of colossal magnitude. The brain as we see it and our own person are but diminished pictures of the reality. In this curious theory, Czolbe agrees to a great extent with Ueberweg (see Lange, *Gesch. d. Materialismus* ii. pp. 516-7), who was driven to it as the logical conclusion from the doctrine that psychical phenomena are actual substances. It is this doctrine, particularly in relation to the theory of vision, that requires fresh attention from psychologists, and many valuable suggestions towards its discussion will be found in Czolbe, who had made a particular study of the subject.* ROBERT ADAMSON.

Kritische Grundlegung des Transcendentalen Realismus. Von EDUARD VON HARTMANN. Berlin: Duncker, 1875.

This is not a new work, but a second and enlarged edition of the author's *Das Ding an sich und seine Beschaffenheit.* It marks, how-

* A very full notice of Czolbe's opinions is given by Dr. Vaihinger in the *Phil. Monatshefte,* Bd. xii. Hft. 1.

ever, an advance upon that book, as containing a more systematic attempt to lay the foundations of a theory of Transcendental or Critical Realism. Readers of v. Hartmann's *Philosophy of the Unconscious* will remember a chapter dealing with the traces of design in nature, in which the writer comes to the conclusion that we are able to infer with a degree of probability that reaches practical certainty the existence of spiritual causes of material phenomena, which are inaccessible to immediate knowledge. All knowledge must rest, in the first instance, upon experience; but v. Hartmann argues that through induction we may attain to an assurance of the identity of the fundamental forms of thought and being, and draw logically valid inferences therefrom. The possibility of illusion is not excluded, since all our knowledge may be a chimera having only subjective existence, without any external reality corresponding to that which we are yet compelled to represent to ourselves as real. This possibility bars the way to a scientific demonstration of absolute truth, for our knowledge is necessarily subjective, else it would not be ours; but is it reasonable to believe that the essential condition of knowledge is the source of universal illusion? Refusing to think so, v. Hartmann holds that metaphysics may be systematically studied with the conviction that truth will be attained.

The question of the truth of our knowledge—whether, namely, thought corresponds with existence, or whether we must for ever remain shut up within our consciousness—is fundamental, not only to metaphysics, but to all other sciences as well. If our knowledge be mere *Schein*, explanation of the phenomena given in experience is impossible. The difficulty is evaded or trodden down by the so-called "Common Sense" philosophy, which, as appealing to blind belief that can give no account of itself, is a negation of philosophy, while the attempts to solve it by attributing to man an organ through which he may have immediate knowledge of the supra-sensible have been failures. But philosophy cannot give up the problem without betraying its mission and sealing its own fate. It is the merit of v. Hartmann that he deals with the question in its historical connections; for there is a profound meaning in the saying that "Philosophy is the History of Philosophy." Kant is the classical authority of modern philosophy in regard to the theory of knowledge, since he planted it on the solid ground of experience. From Kant's doctrine of the origin and nature of knowledge has come the whole subsequent philosophical movement which continues till now. The idealistic side of Kant's theory was consistently developed by Fichte and Schopenhauer, and, with considerable admixtures of Realism, by Schelling and Hegel. V. Hartmann essays to found a realistic doctrine on the philosophy of the Unconscious, and thus to carry further forward the work of modern thought. The *Critical foundation of Transcendental Realism* is a development of the *Philosophy of the Unconscious;* but the author maintains the historical connection of his views with those of the great thinkers who were his predecessors. More particularly

he claims to have carried on the work begun by Kant, while applying to the theories of the author of the *Critick of Pure Reason* the corrections demanded by criticism and modern science. There are only three distinct standpoints for a theory of knowledge, Crass Realism or "Common Sense," Idealism, and Transcendental which is Critical Realism. In opposition to the Idealists, v. Hartmann holds to the existence of a Real other than the representations of consciousness, but it is attained mediately, and not by any immediate apprehension of thought or intuition. This Real, which is the cause of the phenomena of subjective experience, is transcendent, as lying outside consciousness; our direct knowledge of its effects in experience is immanent, and our indirect knowledge of itself as cause, though immanent too, is also transcendental. The Realism of v. Hartmann rests upon the relations or references of thought to a Transcendent, the existence or reality of which is an inference attained through reflection on psychological experiences, or an induction from what is empirically given. Our knowledge of the externally real or transcendent therefore rests on the law of causality. The transcendental applicability of our forms of thought and intuition, or of the entire contents of our consciousness, to real existence, affords the only satisfactory explanation of the phenomena of our subjective experience, whereas Idealism involves the order of the universe in a wild dream, a bundle of unintelligible illusions. Either there is no knowledge, no real experience, and all our supposed knowledge and experience is illusory, or the forms of things *per se* correspond with the fundamental forms of thought and intuition. The categories and the intuitions of space and time are consequently forms of things *per se;* and we are able to trace Reason in all existence, and to regard the Kosmos in its origin and development as the teleological process of logical self-determining Thought. Certainty is not obtained, but we secure a scientific hypothesis confirmed by a vast induction of facts, which overcomes the positions of absolute illusionism. Critical Realism is Crass or "Common Sense" Realism placed on a scientific basis.

V. Hartmann's exposition contains a powerful and incisive critical investigation of the Kantian Æsthetic and Analytic, deserving attentive consideration. We have only had space now to indicate the results he reaches; but we cannot close without expressing satisfaction at the much healthier tone of this work as compared with the repelling pessimism of *The Philosophy of the Unconscious.*

J. Scot Henderson.

IX.—REPORTS.

I.—Physiological and Pathological.

Colour-Blindness.—During the year 1875 various papers have been published in Continental journals on this subject. The theory of the perception of colour proposed by Thomas Young, and resuscitated by Helmholtz, has met with considerable opposition from

various physiologists, more especially from Fick, Wundt, Dor and Schirmer; the chief objection being that certain of the phenomena met with in colour-blind people cannot be accounted for by the theory. Holmgren of Upsala (Om färgblindhetens theorie, kritisk öfversigt. *Upsala Läkareför förhandl*, 1874, H. ii., s. 119; H. iii., s. 187—reported in *Centralblatt für die Medicinischen Wissenschaften*, s. 231) attempts to meet these objections and strongly supports the theory of Young. He points out that, although a colour-blind person does not correctly see a primary colour, one must not conclude that he is entirely without the corresponding organ and has no corresponding sensation. A colour-blind person may have difficulty in describing the sensation he experiences when a particular colour is placed before his eyes. It must also be remembered in examining an eye supposed to be colour-blind that, according to Purkinje, the peripheral parts of the retina are colour-blind to red, and, according to Woinow, to green also; though Woinow's statement as to green is doubted by many physiologists. According to Holmgren, it is pure chance whether one who confounds green with red has been educated to give the correct name, and he had the opportunity of examining two colour-blind persons with the result of having this view confirmed. The one, A, applied the term *green* to yellow, brown and pink; but the other, B, called the same group of colours *red*. There can be no doubt that colour-blind persons have usually educated themselves to give a particular name to a particular sensation, and this must be kept in mind by the physiologist while he is examining such individuals.

In his paper Holmgren develops and criticises a method of detecting colour-blindness proposed by himself some time ago. This method, which I have had the opportunity of verifying, is to obtain grey from three primary colours on a rotating disk, such as a Maxwell colour-top; when colour-blindness will be betrayed by the fact that a larger sector of the absent primary colour necessary for the production of white is admissible for a colour-blind than for a healthy eye. A colour-blind person may also apply the same name to combinations of primary colours as to combinations of white and black. Thus Holmgren has shown that his patient, A, confounds a bluish-green with a lighter green, and a greyish red with a dark grey. Again A and B confound the same grey tint (produced on the disk by 40 degrees of white with 320 degrees of black) with a purple got by mixing red and blue; but A calls the grey *red*, while B calls it *green*. This simple experiment shows that colour-blind persons may designate colour-blind impressions differently, although these impressions to them are quite identical. Holmgren also found that, by experimental observation, he could work out a kind of personal equation for each individual. Thus in the case of A, 285° red + 75° white equalled in sensational effect 215° green + 145° black; and in the case of B, 280° red + 80° white = 175° green + 185° black.

Holmgren further permitted his patients to select particular

colours for themselves, and he tested them as far as possible with the same intensity of light, although that was a matter of considerable difficulty. The general results were the same as above indicated. The conclusion he arrives at is that the perception of colours in different individuals depends on the conscious comparison of different degrees of irritation of retinal elements. If one of these elements be irritated disproportionately strongly, perception of colour may vary according as that element is either one of three or one of two constituents of the retina. He regards the sensation of black as repose of all three elements. Finally, he recognises the importance of taking into consideration possible changes or differences in the central organ in different persons in forming correct ideas regarding questions of this kind.

Th. Hochecker has made various interesting observations on colour-blindness in his own case, which he has recorded, along with remarks by Leber and E. Hering (*Centralblatt f. die Med. Wissenschaft*, p. 748.) Hochecker applies to coloured objects only the names, white, black, brown, red, yellow, grey and blue. He cannot recognise green or violet. By red he means the colour of sealing-wax. The lips appear to him grey; the rose, the blue sky and the redness of youthful cheeks appear to him alike. With the colour-top, he found that for his eye all sensations of colour might be produced by mixtures of blue, yellow, black and white. He confounded a reddish purple composed of 326° red + 34° blue with a grey composed of 20° white + 340° black. The bluish-green given by 215° green + 145° blue he confounded with a lighter grey made of 215° white + 145° black. The red tending to purple and the bluish-green are complementary. Such colour-mixtures as give to the colour-blind eye the sensation of grey have to a normal eye the tint of the absent primary colour, or of its complement. Now as the red was confounded with a much darker grey than the complementary bluish-green, there can be no doubt that Hochecker's eye suffers from *red-blindness*. In the spectrum he sees only two colours which he terms yellow and blue. He sees no red, and he places the commencement of the spectrum within the orange, part of which is also wanting in his consciousness of colour. It is remarkable that the violet end of the spectrum, on the other hand, is somewhat extended. Between the yellow and blue field he does not see any grey zone as other colour-blind persons have stated. As the most luminous part of the whole spectrum, when asked to indicate it, he did not name either the green or the blue but the yellow, thus agreeing with normal vision.

Leber has studied Hochecker's case, and made some interesting observations regarding it. According to him, the essential character of red-blindness, and of colour-blindness generally, does not consist in the entire or partial absence of any set of retinal elements, nor in the absence of any fundamental sensation, but rather in the *insensibility of one or several sets of nerves to waves of certain lengths*. If, for example, the red and green-perceiving elements are both insensible to red light, but almost normally sensitive to yellow

light, it is perfectly intelligible that the maximum brightness should occur in the yellow, even in cases of blindness to red. This hypothesis also explains why the red-blind designate as yellow both yellow and green. If the red-perceiving elements were absent, they should call both green. The modifications of colour consequent on diminished illumination, which the normal eye observes, may also be explained by Leber's modification of Young's theory. In such circumstances, there can neither be an absence of any set of retinal elements, nor of a fundamental sensation, and still as the illumination becomes less and less intense the colour perceptibly changes. Red is the first to pass into a dusky or even a black tone, while blue and green still preserve their colour with the same amount of illumination. All the colours, however, as light becomes less intense, approach to grey, and in a certain faint degree of illumination they are distinguishable only as different degrees of light and shade. When the spectrum is seen with deficient illumination, the red and violet ends appear to be shortened. Here, apparently, the three different retinal elements are all insensible to faint light from the ends of the spectrum, but are about equally sensitive to faint light of intermediate refrangibility. Thus Hochecker's eye, in judging of colour under ordinary circumstances, resembles the normal eye judging of colour by twilight. To put the matter another way, it would seem that with diminished illumination the normal eye approaches to the condition of the colour-blind eye, until, in the same very faint light, they may both be regarded as quite colour-blind. Hochecker states that five members of his family are colour-blind to red. He founds on his own case an elaborate theory as to colour-perception, the consideration of which I must defer. JOHN G. MCKENDRICK.

Functions of the Optic Thalami. — Pathological observation, according to Dr. Crichton Browne (*West Riding Asylum Reports*, Vol. v.), affords considerable support to the doctrine which has been long entertained that the optic thalami are special sensory centres. Lesion of one of them gives rise to paralysis of the limbs on the opposite side, but less in degree than a lesion of the corpus striatum. With this motor paralysis there is marked impairment of sensation in the limbs, and pain is often a persistent symptom, sometimes referred to the head, sometimes to the limbs affected. In several cases narrated there was also persistent loss of reflex action in the paralysed limbs, while in one case of disease of the corpus striatum reflex action was not diminished. Hence it is inferred the spinal reflex action depends on the integrity of the optic thalamus. Dr. Browne believes that there is a cerebral reflex action synchronous with every spinal reflex action, and that the motor discharge of the latter may under normal circumstances only occur on reflex influence from the higher centre, and may not occur at all if the higher centre is destroyed. He points out that a higher reflex action does occur when a cry as well as a start is caused by a prick on the foot. In each reflex action the disengaged

molecular motion is not wholly and solely discharged along the efferent nerves, but part at least passes upwards to higher centres, where further changes are set up, and Dr. Browne believes that he has noticed that the latter, as shown in the cry, may actually precede the reflex movement in the leg. This spinal action may thus, he thinks, be dependent on the reflex influence from the optic thalamus.

The Questioning Mania.—Under the name *Grübelsucht*, Griesinger, a few years ago, described three examples of a peculiar mental condition, characterised by continuous uncontrollable questionings as to the origin and causes of things great and small. Dr. Oscar Berger (*Archiv für Psychiatrie*, Bd. vi. Heft. 1.) describes two similar cases, and considers the symptom in detail. The condition has very distinct pathological relations, but does not seem to have been associated in any case with insanity. The sufferers were for the most part men in early adult life. In some cases other symptoms, indicative of irritable weakness of the nervous system, were present. The symptom was a transient one, and quite different from the habitual mode of thought. There was an incessant subtle questioning as to the grounds of all things, a continuous "why and wherefore" accompanying every idea, to the great annoyance of the sufferer. It was not quiet reflection, but a continuous irresistible pressure of thought, constantly seeking impossible answers, and ever recommencing, disturbing and even alarming the sufferer. "How is it that men are only of the size they are?" "Why are they not as large as houses?" "Why are there not two suns and two moons instead of one?" The same questions in new forms would occupy the sufferer for hours. In one case the first symptom was a kind of morbid precision, an impulse to secure, at any expense of time and trouble, an absolute accuracy in the most trivial things. The patient soon after began the questioning, and was speedily in a labyrinth of problems, the solution of which he felt compelled to attempt, although conscious of its impossibility. In the other case the condition was constantly present in slight degree, but was subject to paroxysmal exacerbations, in which the patient was conscious of a peculiar mental dualism or separation of his mental powers; one part rushing into all possible and impossible speculative regions, while the other, the temperate judgment, endeavoured to quell the excited questioning. The attacks lasted one or several hours. Other characteristics of this patient's permanent mental state were a peculiar realism, so that it was difficult for him to believe that that which he dreamed or read of was not fact, and a peculiar sensation of change in the relative proportions of himself and the objects by which he was surrounded. Dr. Berger assumes that a morbid state of the cerebral convolutions underlies this condition. He points out that the pathological phenomena have certain physiological analogues which are tolerably familiar.

Unilateral Phenomena of Mental and Nervous Disorders.—Isolated Sense-hallucinations are not uncommon in the insane. They

occurred in 34 out of 250 insane patients examined by Dr. Alex. Robertson: in 31 the hallucination was auditory; gustatory in 2, olfactory in 1. Of the 31 cases in which hearing was involved, in 5 voices, &c. were heard only in the left ear; in 5 others, in the left more than the right; in 1 they were heard in the right ear only; in 2 more distinctly in that ear. The disorders of the other senses were bilateral. In most of the cases excess in alcohol was the cause of the insanity, and the form was mild. In cases recorded by Gall, Griesinger, and Van der Kolk, hallucinations were also on the left side. In none of these cases was there deafness of that ear. Sometimes, however, absolute deafness or blindness coexists with auditory or optical hallucinations. The morbid process, in most cases, is doubtless in the highest sensory centres, probably in the convolutions. In the unilateral phenomena, the centre of one side is involved, that of the other remaining free. This is explained on the supposition of some congenital or acquired weakness rendering that part especially susceptible to the morbid influence (in these cases) of alcohol. May not, it is asked, the morbid action set up here, spread over the whole of the mind-centres, just as in Ferrier's experiments the repeated irritation of a small portion of the cortical substance sometimes resulted in general convulsions? As the partial may merge into the general convulsion, as a limited neuralgia may irradiate along many sensory nerves, so the sensorial disturbance may become generalised and involve the mental powers. No explanation is attempted of the relative frequency of left-sided hallucinations. (*Glasgow Medical Journal*, Oct. 1875.)

W. R. Gowers.

Double Consciousness with Periodic Loss of Memory (Amnesia).—The *Revue Scientifique* (20th May, 1876) contains a long report by M. Azam, professor of surgery at Bordeaux, on a very remarkable case of periodic loss of memory and doubleness of mental life. Félida X., a hysterical subject, now 33 years old (married and engaged in business), began, about the age of 14½, to develop a peculiar secondary state of mind, between which and her original condition, varied occasionally by a third kind of state, her life has since been passed. The secondary state has recurred very irregularly and with varying duration. Wholly absent for two different periods of three years at a time (17½ to 20½, 24 to 27), after originally recurring at intervals of days and lasting for hours, it has in the last few years filled much the greatest part of the patient's life, and now gives place to the original or (as M. Azam calls it) normal condition only for a few hours at intervals of two or three months. The passage out of the normal into the secondary state used to occupy some minutes of unconscious sleep, following on violent pain of the temples, a like period of unconsciousness, followed by pain, marking the recovery of the original condition: now, when the secondary state has become the predominant one, the transition to the brief periods of "normal" mental life and back again is almost instantaneous. In the normal state the patient has

always been quiescent and somewhat morose in disposition, being afflicted with the common symptoms of hysterical derangement —indefinite pains, disordered taste, touch, &c.; whereas, in the secondary state, she has always become bright, or even gay and affectionate, at the same time less industrious. But the most marked difference is that in the normal condition she has always retained no memory of the events of her life in the secondary state, while in the latter she has full memory of her life in both states. Her distress (in the normal state) on discovering that there have been blanks in her conscious experience is extreme, but the practical inconvenience from the want of memory, formerly great, has become less and less as the secondary state has gained in extent upon the other. However, if the distressing state of partial oblivion now recurs but at long intervals and for a very short time, the full consciousness of the secondary state remains quite different from the normal consciousness that used to predominate and was even exclusively present for the two periods of three years before mentioned. She has always regarded her state for the time being, whichever it was, as her proper and *rational* one, describing the other (indifferently which) as a morbid state of *crise*. The loss of memory, in the "normal" state, extends only to the events happening as conscious experience in the other; her general knowledge is not in the least affected, and she can do perfectly well everything she learnt in youth, or at other times in the normal state. Only on the rare occasions, when, in passing out of the secondary state, she has gone through a brief third state of extreme terror, have there been any traces of disordered knowledge.

The case, as M. Azam urges, differs in important respects from the other recorded instances of double consciousness. He would explain the loss of memory by supposing that there is a special localisation of the function, like that of language in the third frontal convolution of the brain, and that the supply of blood to the place becomes periodically affected in connection with the hysterical habit of the patient; in support of which position he refers at some length to the cases where sleep is induced by prolonged contraction of the muscles of the eye, resulting, as he argues, in modified brain-circulation. But if this be so, the state which he calls "normal" becomes clearly a morbid one (as might indeed be judged from the general hysterical symptoms), and his interpretation of the secondary state as one of *accès* is rendered doubtful. Elsewhere, in contending that the secondary state is the morbid one, he is disposed rather to make light of the want of memory in the "normal" state, as if it were due to some deficiency in the impressions received during the secondary periods. There is, of course, a third view possible, that both states are more or less morbid; and one would like to have details of the patient's early life, before either the hysterical symptoms or the alternative state were developed. It is merely said that her first years were "difficult," but the general development regular. M. Azam thinks it likely that at the next critical period of life the alternation of states

will cease, and the secondary state already so predominant will prevail altogether. Meanwhile, he graphically says, it is a singular spectacle to see one like Félida "ignorant of all that has passed, all that she has seen or said, all that she has been told for three or four months before. She does not emerge from a dream, for a dream, however incoherent, is always something. She emerges from nothing. If . . . she had had no intellectual life the while, the break would matter little; but she has been perfectly intelligent, her acts have been rational all the time. . . . To compare her existence to a book from which some pages have been torn is not enough. An intelligent reader might fill in the blank, but she can have absolutely no notion of anything that has happened to her in her secondary state. . . . Suppose her husband or children have died; she will miss them and expect them back. A traveller absent for three or four months away from all communication, knows that time has passed: he may wonder what has happened in the interval, but he knows that things must have happened, and he waits to learn. Whereas, after four months of secondary state, Félida on one of her 'normal' days knows nothing of all the time that has elapsed: one hour or four months—it is all the same to her." EDITOR.

II.—PHILOSOPHICAL JOURNALS.

La Filosofia delle Scuole Italiane. Anno vii., Vol. xiii., Disp. 1, 2. Roma, 1876.

This is the only Italian review exclusively devoted to the cultivation of philosophy. Its first four volumes were published at Florence; its later volumes have issued from Rome. It appears every second month, and each number contains between 130 and 150 pages. Its editor, Count Mamiani, is the most celebrated of living Italian philosophers, and a man who has rendered great political and literary services to his country. His name will always be associated with the names of Rosmini and Gioberti, much in the same way as will that of Hegel with those of Fichte and Schelling. Almost every number of the review contains several articles from his pen. In Professors Bertini of Milan, Ferri of Rome, and Barzellotti of Florence he has found zealous fellow-workers. The name of the periodical indicates that it claims to be the organ of he national philosophy of Italy, and there can be no doubt that the principles which it advocates are those held by the immense majority of Italian thinkers. Some authors have denied that there is an Italian philosophy, and professed to be unable to see how what passes under that title differs from French eclecticism. But they have thereby only displayed their own want of discriminative power. All systems of idealism must, of course, have much in common, but he can be no competent critic who fails to perceive that the idealistic movement in Italy during the present century has had a continuity and progressiveness, an independence and distinctive-

ness, of character which fully entitle it to be called national. Those who maintain its right to the designation fully acknowledge that the truths which philosophy seeks are eternal and universal and can belong exclusively to no land or age: they merely maintain that in the search for them the Italian mind has displayed a peculiar genius not less than the German or Scottish mind, which has given to its speculative systems a certain unity of method, doctrine and aim; and that Italians have no reason to be ashamed of what has been distinctive in their philosophical efforts and aspirations, and can only hope to reach truth by being true to themselves. There seems to be nothing extravagant in this; nothing which need give offence to the foreigner or which necessarily leads to native self-conceit; nothing which is inconsistent with the acceptance of light and help from any quarter. Any temptation which the philosophy of the Italian schools may have to exclude or underestimate the value of foreign thought is not, perhaps, likely to draw it far astray. It has a sufficient number of opponents in Italy to ensure the speedy detection and exposure of the aberrations and defects which would result from such a cause. It is most improbable that it will meet in Germany or France or England critics so hostile and depreciatory as it has already found at home in Franchi, Imbriani, Spaventa, Fiorentino, Mariano, &c. If its adherents and educated Italians in general are not fully aware of its weak points, the reason is certainly not any scarcity of persons in Italy itself most willing to point them out and prone even to exaggerate them.

Want of space prevents us doing more than briefly indicating the contents of the two numbers before us. We hope to be able to devote more attention to those which are to follow. In No. 1 Professor Ferri concludes the first part of "a psychological and historical study on Consciousness," the earlier sections of which appeared in Vol. xii., Disp. 3. He has now discussed the nature, forms, development and laws of consciousness in an able and comprehensive manner. Bonatelli continues his exposition and examination of Hartmann's *Philosophy of the Unconscious* begun in June, 1875, and not yet completed. The exposition is the fullest and clearest we have seen, and the critical observations interspersed are numerous and acute. Celli gives us a section of an extremely elaborate essay on "The doctrine of innate ideas according to Descartes, Locke and Leibniz," which was commenced in the first and continued in the third number of the previous volume, and is also still unfinished. Paoli reviews Ulrici's *Gott und die Natur;* Fontana, Labanca's *Dialettica* and Cantoni's *Corso elementare di filosofia;* and Mamiani, Schiff's *Fisica nella filosofia* and the first volume of Vera's *Philosophie de la Religion de Hegel traduite.* The *Revue Philosophique* and MIND receive a courteous and friendly welcome.

In the first article of No. 2 the editor publishes a third selection of fragments from the autobiography of a recently deceased mystical theologian of America, a Dr. Heverley of Charleston. In one of the fragments Dr. Heverley tells of hearing a Mr. Halifax, a

favourite pupil of Sir W. Hamilton, give an account to a public audience at Boston of important unedited manuscripts of Dr. Thomas Reid lent to him by Sir William, with authority to expound them in the principal cities of England and America, but not to publish them. It is a strange story, which one would be glad to have either disproved or confirmed. If true, where are the manuscripts now? Professor Bertini contributes "New elucidations on the question of Ideas." Their aim is to show the insufficiency of the reasons adduced by Rosmini, Manzoni and Bulgarini in favour of the view that ideas have a purely mental existence. In a previous article (Vol. xi., Disp. 3) he endeavoured to prove that they have an objective validity in so far as the mind apprehends them in the Infinite Being. Mamiani commences a treatise on "Evolution," in which he proposes to examine the facts and generalisations of those evolutionists who profess to be guided exclusively by positive science. As he himself elaborated long ago a theory of evolution of a very comprehensive and ingenious character his remarks on the inductions and hypotheses of Spencer and Darwin can scarcely fail to be peculiarly interesting. The paper already published is chiefly intended to indicate the ambiguities latent in the general notion of evolution. Signor Dino treats of two excellent articles of Professor Cantoni on "Feeling," which appeared in Vol. viii., Disp. 2, and Vol. xi., Disp. 2, of the *F. d. S. I.* Wundt, *Ueber den Einfluss der Philosophie auf die Erfahrungswissenschaften* is reviewed by B. Labanca; Paoli, *La Coscienza secondo l'Antropologia del Rosmini*, by G. Fontana; and Mameli, *Della nozione sperimentale del Caso*, by L. Celli: all these reviews seem well done. There are also notices of the *Revue Philosophique*, *Critique Philosophique*, MIND, &c.

Giornale Napoletano di Filosofia e Lettere, diretto da Francesco Fiorentino, compilato dal Prof. C. M. Tallarigo. Anno ii., Vol. iii., Fasc. 1, 2. Napoli, 1876.

This periodical appears every second month and each number contains between 180 and 200 pages. Most of its contributors are connected with the University of Naples, the chief seat of Hegelianism in Italy. It is more, however, a literary than a philosophical journal, and Hegelianism can scarcely be said to be perceptible either in the matter or style even of its articles on philosophical subjects. These articles are, as a rule, not of a scientific but of a popular character, and generally also of a partially biographical nature. The writer of this notice has found specially instructive the papers of Fiorentino on the philosophy and the philosophy of history of Petrarca (Vol. i., Fas. 2, Vol. ii., Fas. 4), and those of Pierantoni on Albericus Gentilis (Vol. ii., Fas. 5, 6). There is a division in the camp of Italian Hegelians as to the position and worth of the native philosophy of Italy. While Vera and his personal disciples, as, *e.g.*, Mariano, treat it with contempt as a loose succession of feeble essays tending definitely nowhither, Spaventa and his friends, among whom are the chief contributors to the *Giornale*

Napoletano, concede to it great merits and contend that it leads up, and links on, to Hegelianism. It is natural that Fiorentino should belong to this latter party, as he was for a time a follower of Gioberti; and, in fact, it is chiefly by his researches into the history of Italian speculation in the 16th and 17th centuries that he has distinguished himself. His *Peter Pomponatius; Historical Studies on the Schools of Bologna and Padua in the 16th century* (1868), and *B. Telesius: Historical Studies on the Idea of Nature in the Italian Renaissance* (1872-74), are admirable books.

The second of the two numbers of the *G. N.* at present before us contains nothing which it would be appropriate to notice here. In the first there is an article on "Free Will," and another on "Positivism and Idealism." The former is a lecture delivered in the University of Naples by Prof. Passina, at the opening of his course on penal law. Holding that legislation and responsibility presuppose free-will he combats as incompatible with it, first, Greek fatalism, second, the theological necessitarianism resulting from belief in absolute predestination and irresistible grace, third, the determinism of Spinoza due to the conception of the absolute unity and identity of substance, and fourth, the physiological and psychological determinism of the philosophers of the 19th century. Naturally it is the last of these forms of necessitarian doctrine which receives most of his attention. The article on "Positivism and Idealism" by Prof. Fiorentino is his inaugural discourse at the University of Pisa. The course of thought in it runs thus:—There is an alternation of fashions in men's speculations, and positivism is predominant at present because idealism was so not long ago; the positivism of Comte, corrected and developed by J. S. Mill, contains nothing really original, but finds a relative justification in the excesses of the idealism which it combats; essentially, however, it is a philosophy of which the last word is not reason but chance; idealism has been unjust to facts, positivism is unjust to ideas, and a monistic system is required comprehensive enough to include all the truth of both, while excluding their errors; a chief obstacle in the way of building up such a system is the difficulty of historical, as compared with merely physical, induction; this difficulty can only be overcome by the methodical investigation and comparison of subjective or psychological processes and objective or social facts. The remarks on the difficulty of historical induction are excellently put.

Zeitschrift für Philosophie und philosophische Kritik. Bd. 68. Hft. 1. Halle, 1876.

This number of the *Z. f. Ph.* will be noticed by us much more briefly than its predecessors, not because it is inferior to them but because the two articles which it contains are both second parts of essays the general scope and character of which we have already indicated (see MIND, No. II. pp. 273-4). Dr. F. Steffens continues to show "What gain to the knowledge of the history of Greek philosophy from Thales to Plato may be derived from the writings

of Aristotle" by reconstructing that history entirely out of the materials furnished by Aristotle. The collection of Aristotelian proof-passages promises to be nearly complete and the interpretations given seem natural and unstrained. Dr. Hoffmann, treating of "Anti-materialism," continues to criticise Büchner's *Aus Natur und Wissenschaft*,—the three new chapters added to its thirteenth edition being those which are on this occasion assailed. Dr. Büchner, according to his critic, has shrunk from grappling with all recent refutations of materialism of real importance and measured his strength only with weak opponents. Under the heading of "Recent writings on the Philosophy of Kant," Dr. Sengler reviews Hölder's *Exposition of the Kantian Theory of Knowledge*, Witte's *Contributions towards the understanding of Kant*, and Stadler's *Teleology of Kant*. He considers them as important productions which supplement one another, Hölder throwing considerable light on the character of the criticism of pure reason, Witte on the doctrine of the practical reason, and Stadler on the fundamental principles of the criticism of the faculty of judgment. Dr. B. Erdmann reviews Dr. E. v. Hartmann's *Critical Foundation of Transcendental Idealism*, which is just a second edition of his treatise on *The Thing-in-itself and its Nature*. Hartmann endeavours by determining the relation of thought and being to refute transcendental idealism and to establish a transcendental realism. His reviewer examines his arguments and finds them insufficient either to prove the existence or determine the nature of the *Ding an sich*. He challenges also the accuracy of Dr. Hartmann's statements as to the views of Leibniz, Berkeley, and Hume, on the objective validity of knowledge. Dr. Ulrici passes judgment on three works. (1.) The *Metaphysical Researches* of Prof. Kym of Zürich, one of the ablest of Trendelenburg's disciples. While praising the work he combats the mechanical conception which it gives of nature and thought. (2.) The second volume of the German translation of the *History of Philosophy* by G. H. Lewes. Dr. Ulrici's aversion to the positivist principles of Mr. Lewes prevents his doing justice to his ability. (3.) Turbiglio's *B. Spinoza e le Transformazioni del suo Pensiero*. Dr. Stumpf eulogises a book *On the Origin of Language* recently published by Dr. A. Marty of Würzburg, as combining in an eminent degree scientific knowledge and philosophical talent.

Philosophische Monatshefte. Bd. xii. Hfte. 2, 3. Leipzig, 1876.

The first article in the first of these numbers is meant by its author, Dr. Spir, to shed light on the search for ultimate principles. It at the same time supplements an article which he published in Bd. xi. Hft. 6, under the designation of a "Contribution towards perpetual peace in philosophy." He there argued that if philosophers could be once got unanimously to assent to any first principle there was a likelihood of their coming to a unanimous settlement of all their more important disputes; that the root of their differences lay in this, that while some held knowledge to be wholly derived from experience, others maintained that there were elements of

knowledge independent of experience; that if the former could prove what they believed they would bring about a perpetual peace by showing that philosophy was simply experiential or positive science; that the entire nature and history of philosophy, however, protested against this answer; that experience itself proved the contrary to be true, because no single datum or object of experience conformed to the principle of Identity, all being subject to change, and change being exclusive of identity; yet that the principle of Identity was no mere tautological phrase, but a true and positive expression of the essence of things; that it was consequently an original *à priori* law of thought; and that this fact was rich in important inferences. He begins his present paper with the admission that the former one seemed to have altogether failed to accomplish the end for which it was written. This is the reason why he tries again. He boldly starts with the *Ding an sich*, "the thing in its own inner nature." There can be no doubt, he says, of its existence. The only question is, Does experience show us the proper essence or inner nature of things? Are the objects of experience things-in-themselves, or do things-in-themselves lie beyond experience? All philosophy depends, according to Dr. Spir, on the answer which is given to this question. If things-in-themselves can be known through experience, philosophy must be merely a systematisation of the sciences of experience, or, in other words, a kind of positivism. But the whole movement of philosophy shows that this answer is not to be returned without serious investigation. To test it we must raise the question, Is there a law of thought which compels us to conceive of the nature of things otherwise than as experience presents them to us? The essayist argues that our knowledge of bodies shows that there is such a law. In experience bodies are apprehended only as combining diverse qualities; in themselves they are necessarily thought of as absolutely identical. It is as impossible for a thing-in-itself to be at once green and sour as to be both white and black. There is a law then, of which the proper expression is that "the nature of the thing-in-itself is identical with itself," or that "in its own nature every object is identical with itself;" and this law cannot be derived from experience, as the universal mark of empirical objects is the combination of differences under certain conditions. Thus experience indirectly confirms the apriority and objective validity of the law of thought indicated, and from it the principle of Causality and other principles may be deduced.

Dr. Weiss criticises the article of Herr Knauer which appeared in Bd. xi. Hft. 10, and lays down and defends eight theses intended to prove that the Atom is no myth. He does not share Dr. Spir's belief in a bodily *Ding an sich*, for one of his theses is that "matter without properties is a nonentity." There is nothing, perhaps, in the article not already stated by himself more fully in his well-known *Antimaterialismus*. Prof. Krähenbühl, of Lucerne, writes on "The Unity of Consciousness with reference to the Psychology of Brentano." He begins by stating that the unity of conscious-

ness does not exclude complexity of organisation, powers, and functions, while it is, at the same time, neither a mere collective unity, as the army is a collection of soldiers or the body a collection of cells, nor a mere resultant unity due to the co-operative or antagonistic action of a variety of forces. It lies in the reference of all the acts and states, faculties and passions, of the individual man to a single centre, the one self-conscious ego. This unity of consciousness, according to Prof. K., is a peculiar fact, which cannot be properly illustrated by physical analogies, but can only be understood through the study of consciousness itself. He admits that some psychical states are not so closely connected with consciousness as others, and endeavours to confirm the argumentation by which Brentano attempts to refute the objection to the unity of consciousness raised by Ludwig on this foundation. He denies that the unity of consciousness implies that the soul constantly and as to all its acts exercises its unifying power, yet regards it as the chief error of Brentano that he concedes that there is no direct and immediate evidence for this unity beyond what is contained in the psychical states present in consciousness at a given moment. Unless the unity of consciousness extends beyond the present all perception and knowledge, he argues, are impossible. Apparently, the view of Prof. K. is just that held by Reid and opposed by Hamilton,—that memory is an immediate knowledge of the past. The next article is a reply of Horwicz to some criticisms of Volkelt on the second part of his *Psychological Analyses*. It is rather of personal than of scientific interest. Dr. Vaihinger next gives us an instructive paper on "The origin of the word *Erkenntnistheorie*." He has not been able to trace it farther back than to 1832, when it frequently occurs in a work of E. Reinhold. It has only become widely current since its employment, in 1862, by E. Zeller, in his lecture *Ueber Aufgabe und Bedeutung der Erkenntniss-Theorie*. The reason why it has taken the place of the older term, *Erkenntnisslehre* is that it has convenient derivatives, *e. g.*, *erkenntnisstheoretisch* and *Erkenntnisstheoretiker*, whereas *Erkenntnisslehre* yields neither an appropriate adjective nor substantive.

A lecture of Dr. Kirchmann on "The Significance of Philosophy" stands at the commencement of No. 3. He defines philosophy as "the science of the ultimate notions and laws of knowing and being;" indicates the characteristics which distinguish it from the special sciences; dwells on its uses, and briefly considers the two questions, How shall philosophy be studied? and How may one become a philosopher? The second article in the same number is a "Psychologico-metaphysical analysis of the fundamental Laws of Thought," by Prof. v. Struve, of Warsaw. He accepts as the fundamental laws of thought the principles of Identity, Contradiction, Excluded Middle, and Sufficient Reason. In the first part of his essay he seeks the psychological explanation of these laws, and seems to himself to find that the first is the generalised abstract expression for the concrete fact of the identity of consciousness; that the second is drawn from the distinction between the perma-

nent and the variable in consciousness; that the third results from the impossibility of apprehending change or diversity in existence entirely apart from permanence and identity; and that the fourth is based on the consciousness of the inner connection between subject and object in perception. The second part of his essay gives a sketch of the metaphysical system which he would construct on these foundations. It is full of ingenious and independent views, stated almost as briefly as consists with intelligibility, so that to summarise them is out of the question. The essay is one which well merits careful study. It is, perhaps, unnecessary to say that the bibliographical department of the *P. M.* is as admirably conducted as ever. R. FLINT.

Revue Philosophique de la France et de l'Etranger. Dirigée par TH. RIBOT. Première Année. Numeros IV.—VI. Paris, 1876.

The most striking article in the April number of this review is from the pen of M. Léon Dumont, on Habit. The writer seeks to give to the idea of habit the most extensive signification, regarding it as a universal fact both of the organic and of the inorganic world. He finds its simplest illustration in the form of movements preserved by the constituent elements of an inanimate body under certain environing influences, and he traces its influence in the highest domain of intelligent volition. "Habit is, in a force, its manner of reacting on other forces, which manner itself results from the action which the other forces have previously effected on this one." In the same number M. Vacherot finishes his account of the antecedents of the Critical Philosophy; and M. L. Liard makes a creditable attempt to retain a place for the notions of Species and Genus in natural science, by regarding them at bottom as a system of laws of coexistence of a greater and greater degree of generality, though owing to the inexactness of our knowledge of their laws, we are unable to replace the image of the external form or the type by a formula.

In the May number M. Bouillier, who has himself written on Pleasure and Pain, has some pertinent criticisms on M. Dumont's new volume on this subject. After the first part of a clear *résumé* of Lange's *Geschichte des Materialismus*, by M. J. Soury, there follows a curious article on the Theory of the Syllogism, by M. J. Lachelier, in which it is maintained that mediate inference does not, as is commonly supposed, rest on immediate inference, but that every case of the latter is really a disguised syllogism. When, for example, we convert simply the particular affirmative, Some A is B into Some B is A, the real process is Datisi in the third figure,—thus: All A is A, some A is B; therefore some B is A. An article of some length on the Development of Volition, by Herr A. Horwicz, the author of the excellent *Psychologische Analysen*, is rather disappointing. The lowest stage of will is said to be appetite, which is defined as "a feeling (sentiment) associated with recollection." No attention is given to the apparently instinctive

element in conscious action, and thus one of the main problems in the evolution of will in the race is untouched. Some of the writer's statements, moreover, seem to be at least doubtful, for example that wish and desire invariably have a recollection of pleasure as their starting-point. May one not desire simple relief from a present pain?

In the last issue of the *Revue* we have an article by E. von Hartmann on Schopenhauer and his disciple Frauenstädt, a short paper on Cerebral Localisation, by Dr. R. Lépine, a translation of two recent articles on Spiritualism and Materialism by Mr. G. H. Lewes, and a study of the Sources of Indian Philosophy by M. P. Regnaud. The first of these is likely to attract most notice among English readers, and is indeed not a little interesting. The writer twits Frauenstädt with his personal veneration for his master, owing to which he fails to see the inconsistencies and inadequateness of the latter's system. The article is very characteristic, especially in the policy of the endeavour to separate *Die Philosophie des Unbewussten* as far as possible from *Die Welt als Wille und Vorstellung*.

JAMES SULLY.

X.—NOTES.

Logical Contraposition and Conversion.—On page 148 of MIND, the Editor proposes to resolve the inference,

All S is P,
∴ No not-P is S,

into two steps, thus,

All S is P,
∴ No S is not-P,
∴ No not-P is S.

To this I object on the ground that both steps of the latter process depend on a property of the negative which is not essential to the validity of the inference proposed to be resolved. In the universal negative proposition, *homo non est animal*, the *non* qualifies the copula. The meaning of this qualification must, however, be defined to be such that the proposition is equivalent to *homo est non animal*, taken in such a sense that the existence of a man is not asserted. We may, therefore, substitute for the forms of inference in question,

All S is P,
∴ All not-P is not-S;

and

All S is P,
∴ All S is not-not-P,
∴ All not-P is not-S.

The word *not* here has two properties. The first is that it is a relative term. To say that an animal is not a plant, is to say that it is *other than* every plant, just as we might say that it was *superior to*

every plant. The second property is that the relative term *not*, like *cousin of*, *similar to*, etc. is its own converse. Now the first inference does not depend on this second property since it is of a form which holds good for all relative terms whatever. Thus we may reason,

All negroes are men,

∴ Every lover of all men is a lover of all negroes.

On the other hand both of the steps of the proposed resolution do depend on the convertible character of negation. C. S. PEIRCE.

[Mr. Peirce gets the contrapositive of All S is P without the double process of obversion and conversion, but does not, as far as I can see, impugn the validity of the double process. What he asserts I am far from denying, though I doubt whether his mode of treating the proposition is one that would in all cases be easily applied. The double process is always perfectly sure and simple. To obvert a proposition is to express it as negative if it is affirmative, as affirmative if it is negative: convert it in this obverse form, and then you have its contrapositive. It is interesting to note the consequence as regards the four typical propositions known to logicians as *A*, *E*, *I*, *O*. As every tyro knows, *A* is degraded in quantity when converted as it stands, and *O* cannot be converted at all; *E* and *I* alone get full justice in conversion. The scale is exactly redressed in contraposition: *E* becomes degraded in quantity, when converted in the obverse form, and *I* cannot be contraposed at all; on the contrary, *A* and *O* get full justice.

Mr. Peirce's objection, if objection it should be called, seems to be sufficiently met by saying that, since the word *not*, treated as a relative term, is its own correlative, one is at liberty to take account of that fact in dealing with the logic of affirmation and negation. The case would be different if one were setting up a logic of relation in general.

I would add that the scheme of associated theorems put forth in the new *Syllabus of Plane Geometry* (see MIND, I., p. 147) is to be found substantially in M. J. Delboeuf's remarkable work, *Prolégomènes Philosophiques de la Géométrie* (Liége, 1860) p. 88, and is there referred back to a work by Hauber, published in 1829. For the words *converse* and *obverse* as used with a special meaning in the *Syllabus*, M. Delboeuf says *inverse* and *reciprocal*—words which are far better as avoiding all confusion with the fixed sense of logical nomenclature.—EDITOR.]

The Uniformity of Nature.—Mr. Lewes's restatement of his position on this point, ingeniously put as it is, fails to convince me. I still find no real coherence between the links of the proffered argument, and I can only take refuge in the puzzled exclamation of Dionysus in the *Frogs*:—

εὖ νὴ τὸν Ἑρμῆν. ὅ τι λέγεις δ' οὐ μανθάνω.

That which is, is; and That which will be, will be—these I do freely admit to be self-evident and identical propositions; but they

seem also, like all other identical propositions I know of, to be hopelessly barren of real inference. Mr. Lewes professes, in some way which I confess myself unable to seize, to weld the two identical assertions into the distinct and perfectly real assertion, That which is will be, or, That which has been will be.

To the objection that, for aught we know, Time and Space may themselves be among the conditions, Mr. Lewes answers that Time and Space are abstractions. Let us then, instead of talking of Time and Space in general, speak more particularly. Suppose A, B and C to be similar sets of conditions repeated at different times and places: surely it is a specific fact, and not an abstraction, that A happens elsewhere than B, or before or after C; nor does it appear to me at all self-evident that neither of those facts can make any difference. And I cannot quite see where Mr. Lewes would draw the line of self-evidence. Is it inconceivable, for example, that there should be a secular variation—in other words, a variation depending on time alone as a condition—in the law of gravity? So far as I can trust my own feelings it is to me perfectly conceivable; indeed I do not see how we can ever be assured that there is not, in fact, some such variation. We can only know that there is no sensible variation within the range of human experience as at present ascertained. Again, if a minute periodic variation is conceivable, why not a minute variation in time without a period, or even a variation in time which is neither periodic nor minute? For my own part I can give no reason whatever. So again of space: is it impossible to conceive a minute variation in the law of gravity depending on pure space-relations or on the constitution of space? Assuming, for example, that in homaloid space the law of the inverse square is exactly true, might it not, in space of a different kind, be the inverse square *plus* some other small term having a constant relation to the curvature? Or, without going into these speculations, can we not conceive that there is in space as we know it a minute additional term which is some function of the distance from an assignable point—say the centre of gravity of our celestial system? Here, too, it seems to me not only that we can conceive the thing, but that we cannot know it to be otherwise. But I fear we are not likely to arrive at any present settlement.

FREDERICK POLLOCK.

The Postulates of Experience.—In the question at issue between Mr. Lewes and Professor Bain, Time and Space, it appears to me, are clearly not *in themselves* conditions that can be taken into account. Time simply means all the conditions viewed as successive. But the conditions, to which an ascertained law of nature applies, are *already successive.* The course of nature is a process in time, and that process consists of uniform co-existences and sequences, which are capable of being observed and registered, only because they are uniform; since to observe means to classify. For experience to be possible at all, there must be groups of similar and dissimilar phenomena following one another according to a

given uniform order. This sequence of phenomena we call Time, and the co-existence of phenomena—at all events in the external order—implies Space. That the boiling point of water under the ordinary atmospheric pressure is 212° F., is a general proposition involving both time and space—expresses the result of repeated observations made at different times and in different places. The statement of a law of nature, *ipso facto*, essentially involves the conditions of time and space. It is under condition of difference in time and space that a law of nature is ascertained to be true—therefore, evidently, the difference in time and space cannot suffice to make the same law untrue. Professor Bain says there is no contradiction in supposing that a million years hence the boiling point of water at the ordinary pressure may be raised to 250°. But what *are* a million years *apart from* the uniform succession of more or less similar phenomena, which we mean by a year multiplied a million times? Nothing whatsoever. Therefore, of course, a million years, the other conditions remaining unchanged, can make no difference in any ascertained law or phenomenon. If during two years a law remains constant — the successive phenomena that enter into the idea of two years themselves constituting the law—it will remain constant for a million years, if the successive phenomena concerned in it remain equally unchanged. It will not be the succession of them that will change the law, seeing the succession, on the contrary, helps to constitute the law. If a million years hence the boiling point of water under ordinary pressure be raised to 250°, then clearly the physical conditions will have been changed. The water will no longer be the same, or some new element will have essentially altered the phenomena observed, which of course may make the boiling point different; but no law of nature will be changed; all will be uniform as before. And again, if the physical conditions are the same in London and at Pekin, how should the phenomenon vary? Difference of place already enters into the idea and statement of the law; it, therefore, abstractedly by itself, cannot make the law vary. The boiling point on a mountain top varies from that on a plain—therefore it may vary from that in Sirius—but in either case it must be because the physical conditions vary. And we are so constituted as to postulate a sufficient reason for whatsoever happens, *i.e.*, begins, continues and ends. We assume that there is an adequate cause or reason for all that happens, though we may not understand at all fully what the reason is. There is a sufficient reason for the boiling point of water under certain conditions (we cannot help assuming) being 212°, and nothing but that. The conditions themselves must alter before the law can alter; for the law is constituted by the varying and yet uniform conditions—it expresses their uniform *relation* to one another in time and space, which relation is of their very essence, part and parcel of a Natural Order.

The causes remaining as they are, the effect cannot vary, and an ascertained law implies a constant cause. But the postulate of

the Uniformity of Nature surely implies rather more than Mr. Lewes allows for. It implies an expectation that the order of Nature will proceed uniformly in the sense of continuously—with no violent leaps, no chasms in experience. This no doubt has been our past experience, and that of the race. But experience, and the process of Nature, proceeding *pari passu*, are so and no otherwise for a sufficient reason. This is the essential order of things. Only, expectation of this kind of uniformity, this continuity of conditions, this gradual development, is subject to variety of degrees according to past experience. Thus there have been cataclysms and even apparently miraculous phenomena. There is Birth and Death also. Nevertheless, if the very truth and reality of phenomena be in their universal relation, in their passing over into one another, we *must* think Nature as uniform, as a system of identity amid differences. Forces are "correlated," and Energy "persists." In evolution the implicit becomes explicit. The whole Being in each part urges on the parts into their different modes of manifestation, in order to organise Itself completely. Prof. Bain says, "we simply risk the future being like the past." But in fact we risk it, *because it is, and must be so*—because Nature and Thought being correlative are so constituted. No other explanation can be given—none has been given by the non-intuitional school—of our "risking" it. We have confidence in the permanence of Natural Law because we ourselves are part and parcel of the constitution and course of Nature. Indeed, to scientific materialistic idealists of the modern school like Hume, Mill, Mr. Hodgson, (and I suppose Mr. Bain), Memory and the Past are not a bit more really explicable than the Future: an established law even with respect to the past is perfectly unintelligible on their theory of all being a succession of feelings and sensations; because without some focus of unity wherein these successive feelings may be concentrated and compared, no expression of a general law applicable to many similar instances is possible—nay, not the most vulgar experience is possible, for that involves memory, and *organisation* of sensations. There is besides a perception of external fact—(I grant, fact relative to human intelligence)—which they cannot explain. But they cannot even logically pass the boundaries of their own truncated personalities—truncated because logically cut off from alien personalities, which are needed to supplement them. They cannot logically believe that *what has been has been*, because the knowledge of time involves the summoning of past feelings or ideas together with present before the same tribunal of personal identity, or in order that they may be judged to be past—to have been in the same consciousness before. Such a process to a mere succession of feelings (as Mr. Green has exhaustively shown) is impossible. The feelings must be held firm as my feelings, as belonging to me, who am the same now as I was then—though, so far as the change of feelings go, not the same. This only can give the idea of time—which is an idea of identity amid difference. But if the non-intuitional school can logically believe in laws of Nature applicable to the Past, they may be just as certain

that these laws are applicable to the Future. Some would say that personal identity suffices to give assurance of future as well as past uniformity in Nature. The essential unity of consciousness, its essential nature as a process in time, as identity manifest in successive differences, seems quite sufficient to give assurance of such uniformity, so far as phenomena are concerned, "laws of nature" being the universal or general moulds in which Nature appears to us. But if we have intuition (as I believe) that Nature is verily external to us, then we also know that Nature itself, *so far as it is related to us*, has verily these general laws, or modes of manifestation and existence. Nature's identity is in correspondence with our own, and they proceed *pari passu*. The fact of this close correspondence of subject and object involves however their essential identity, which becomes still more manifest if we examine the Mind and Nature in detail: still Nature is Mind in external representation, or symbol; Mind is Nature become conscious of itself: the one could not be without the other. Into this, however, we cannot here enter fully.

RODEN NOEL.

The Gratification derived from the Infliction of Pain.—The question (see Mr. Sully's Note, MIND, II. p. 285) of the relationship of the malevolent sentiment to the sentiment of power, in the final analysis, is an exceedingly subtle point; indeed it may be said to carry with it the ultimate resolution of all the chief emotions of the mind.

In the first edition of *The Emotions and the Will*, I gave as the analysis of anger—the feeling of power, the riddance from fear, and the sensuality of inflicting pain. I had discussed the whole matter with Mr. Mill, and he concurred in the analysis.

Of the three constituents assigned, the most apparent and indubitable is the second—the deliverance from fear. The disabling of an adversary is necessarily attended with an agreeable rebound, proportioned to the depths of the possible danger as we apprehend it. To kill him that otherwise would have killed us must needs occasion a burst of exultation and joy.

The third constituent—the sensuality of inflicting pain—is very hard to define. There seems to be some connection between painful inflictions and the sexual excitement, which, if we could establish and estimate it, might help us out of the difficulty of finding an adequate source of the pleasure of malevolence.

The first named ingredient—the pleasure of power—would contribute its share to the analysis, if we could be sure that the sweetness of power is a fact independent of malevolence. But this is the very thing that I have seen reason to doubt. As I survey the various modes of the exercise of power, I am struck with the undoubted presence of an element of malevolence where the gratification is at its highest. Minds that have much sympathy and little antipathy do not desire power: or if they do desire it, it is

avowedly to counterwork maleficent agency. The general rule being that the best you can do for human beings is to avoid coercing them, the excessive desire of power is generally for the sake of harm whatever may be the professed intention.

In the analysis of power itself, we must make full allowance for the obtaining of sense-gratifications and sense-exemptions, together with the pleasures of love and affection. Power is, in this aspect, to a great degree identified with property or possessions. Now, according as we desire all these things, we desire the means of obtaining them. In the early stages of animal and human life, such benefits could not be procured without first wading through slaughter, and hence the plausibility of the supposition that the delight in slaughter and in all its associations is due solely to its instrumentality in procuring the final ends of existence at that stage. The idea is that having once learned the delights of blood, when it was a means to the other or the more primary ends, we keep it up as an addition to our pleasures when it ceases to have the same importance. One would think, however, that such a horrible delight would be abandoned, in the face of the strong feelings that incline to amity, pity and the social feelings, when it was no longer a sad necessity. The alteration of the circumstances should have altered the case. But maleficent pleasure, although very much transformed in its workings, is still as strong as ever. We seem to feel that it is an end in itself; our consciousness cannot detect any latent reference to a deeper end. No doubt, any one may say that the original end has been effaced from our recollection. This, however, is a pure assumption; we can neither affirm nor deny it upon any evidence except analogy; and the analogies are scarcely strong enough to support it.

To come back for a moment to the deliverance from fear. The employing of this explanation would suppose that we can distinctly assign the evolution of fear itself. But in this we assume too much. No evolutionist has done anything for fear. Taking for granted a general susceptibility to fear, Evolution accounts for the special growths connected with it: the instinctive dread of animals towards their hereditary enemies, and the dread inspired in the human infant by the frown. But regarding the general susceptibility, of which these are merely specific directions, there is no explanation whatsoever. For my own part, I have been content to regard it as a primary fact coeval with the sense-susceptibilities themselves, or rather with these at certain not very high stages of intellectual development. It is a weakness of the system superadded to the proper feelings of pain, which are not necessarily accompanied with fear. As it exaggerates the pains themselves, when viewed in the distance, so it exaggerates the deliverance from them. It widens the interval that separates the lowest depths of privation and misery from the greatest heights of pleasurable exaltation. All this is favourable to the growth of associations with all the circumstances of relief from the greatest of all dangers in the struggle for existence—the being

vanquished by the power of the stronger. But whether such associations would amount to the plenitude of the sweets of malevolence, no one is competent to say.

Mr. Sully makes the weakening of a dangerous adversary the first generating source of the pleasure of anger, and the sentiment of power as superiority the second. I doubt, however, whether the second be really a distinct fact. Superiority seems to owe its essential charm to perfect immunity from harm; if it means anything farther, it must be the disinterested passion for inflicting harm, which is the thing to be explained. Superiority, after all, is a means to other ends; it may imply simply the greater share of life's good things and of immunity from its bad things, apart from malevolent infliction pure and simple; or it may take this in along with the others. I cannot help thinking that when the pleasure is at its maximum pure malevolence enters as a part.

I repeat that, as a fact, the infliction of bodily pain on another personality appears to re-act upon the sexual appetite, and may thus derive some portion of its horrible fascination. Why this should be, upon Evolution or any other hypothesis, I do not venture to say. It is doubtless in the interest of sexual gratification that animals make a large number of their victims, so that the spilling of blood might contract special associations with this most furious of natural appetites.

A. Bain.

X.—CORRESPONDENCE.

The Automatic Theory of Animal Activity.

In almost every physiological work I have yet read, the word *automaton* has been found to be employed in a very loose and self-contradictory sense. Sometimes it is used as the exact equivalent of the term *machine* (in its ordinary and popular signification), at others, as equivalent to a machine *plus* consciousness. In his well-known work *Mental Physiology*, for example, Dr. Carpenter employs the word now in the one sense now in the other. Not unfrequently he speaks of actions *originating* in Feeling, with something even of Intelligence and Will, but becoming in course of time purely automatic or mechanical. Now, is not this hovering between two such widely different meanings altogether unjustifiable? An automaton must be either a machine devoid of consciousness, or it must be a body whose actions are determined by feeling: it cannot be both. Nor can I see how actions that require feeling to start them should ever come to be performed entirely *without* feeling — how an organism which responds to stimuli purely in virtue of its sensibility, should ever come to respond to the self-same stimuli in the utter absence of sensibility. That actions, at first performed with difficulty, should by-and-by be done easily, is conceivable enough

and verifiable any day or hour. That feelings which at first spread beyond their own peculiar nervous centres of activity, forming for a time (longer or shorter) other and more complex combinations, should at length subside into a sphere of purely local activity, doing their own special work in their own particular way, and should henceforth only manifest their existence to the rest of the living frame as part of the general stream of consciousness,—this also seems perfectly reasonable, and is, I think, the theory which a comprehensive philosophy would offer with the fullest confidence, as explaining all the facts of all the cases ever yet adduced. But that a sensitive organism, acting only *because* of its sensitiveness, should ever become transformed into a mere machine, seems to me an impossible conception. For surely feeling is a thing or fact *sui generis;* if it is not a positive quantity, it is at least a positive quality, and that is quite the same thing so far as this argument is concerned. The question therefore is: In the passage from sensational activity to action purely mechanical *where has the feeling gone?* Philosophy has a right to ask this of Physiology, because to expect to see actions which owe their origin only to feeling performed in the entire absence of feeling, is simply to look for an effect in the absence of its cause. And it will not do to reply, as Dr. Carpenter does, that the attention is otherwise engaged; for attention is not simple feeling but an operation on feeling, feeling reflected on, distinguished from that confused mass of other feelings which are always more or less vividly present. And not Dr. Carpenter only, but nine-tenths of physiologists in general, seem to hold that, in the case of automatic actions, not attention merely —the brain consciousness, but simple feeling—the organic consciousness, is totally wanting. They even speak of reflex *feelings* subsisting *in the absence of sensation!*

The inconsistencies into which physiologists and psychologists, who have equally hazy ideas on this subject, are led by this contradictory use of the words automaton and automatic are many and glaring. Dr. Carpenter, for instance (*Mental Physiology*, p. 58), admits the facts involved in Sir John Lubbock's successful attempt to train a wasp, yet goes on talking all the same of insects being mere automata. Now, if the wasp had lost all feeling, and become a pure machine, it is absurd to speak of a successful attempt to *train* it. Think of an attempt to train a steam-engine! Yet why not, on Dr. Carpenter's grounds? And if it *had* feeling, and had had it throughout, it could never have been, or become, a mere machine. It seems clear, therefore, that Dr. Carpenter ought either to dispute Sir John Lubbock's alleged facts, or at once give up his notion of the possibility of insects ever becoming mere pieces of ingenious mechanism. To admit that the wasp's actions were the result of education, and then straightway to speak of them as the actions of a pure machine, is self-contradictory in the extreme. It is impossible to maintain a position of the kind without setting at defiance all known laws of causality, and all the facts of personal experience. Judging from the analogies furnished by our own

consciousness, the ultimate test in this, as in every other case, we would say that the humblest training process demands, in the object of it, Sensibility, something akin to Intelligence, and the rudiments at least of a Will.

As an example of purely *reflex* (by which he means purely *mechanical*) action, Dr. Carpenter (*Ment. Phys.*, p. 73) mentions the case of infants who have been born alive without any brain, "and have lived and breathed for some hours, crying, and even sucking, though they had no nerve-centres above the medulla oblongata." If such animals, he goes on to say, "have any consciousness at all, it can be of no higher kind than that sense of need which we ourselves experience when we hold our breath for a short time," &c. A noteworthy admission: for who ever dreams of a pure machine feeling a *sense of need?* If a brainless animal *has* such a sense of need it can be no mere machine, it must be *a sensitive organism*, however humble its feelings and simple its possible activities. Moreover, does not a sense of need involve a *straining after* that need's supply, and, however vague that straining, must it not be called a rudimentary will, involving even Intention, however ill-defined? And how, one may ask, could the straining, in such a case as the above, be other than vague, and the intention other than ill-defined, when the animal has lost almost all the vehicles of that knowledge which alone can transform vagueness into distinctness, and ill-definedness into clear vision? Eyes are gone, ears are gone, organs of smell are gone, any little thought-power that ever belonged to the animal is gone: what could be expected to survive except a mere sense of need? But if that sense of need does survive, then the machine theory of animal activity falls to pieces. And if Dr. Carpenter is as sure of the soundness of his automatic doctrine as the prominence he gives it in this volume demands that he should be, why does he grant even the possibility of an animal *minus* a brain having feeling at all—not to say such feeling as a sense of need, which (twist the phrase as one may) does imply somewhat of Intelligence and Will? Why also does he use so frequently, all through his work, the words "as it were," when speaking of apparently mechanical or automatic movements in animals? Full assurance does not deal in such doubtful phraseology.

In these remarks I desire to be understood as using the word "machine" in the ordinary sense, as a thing entirely without consciousness of its own activities, because it is in this sense that the word is employed by all those physiologists and psychologists who set such store by so-called automatic actions and reflex feelings. My own belief, however, is that Philosophy's last word to our age will be that all activity in Nature is self-conscious in its own way—that every moving atom has its subjective as well as its objective side, and therefore that the common understanding of the words "machine" and "mechanical" will be found to be very much below the truth. This last word of Philosophy seems to me alone capable of settling effectually and with strictest logic the whole question at issue here. But, in the meantime, without taking this

highest ground of all, Philosophy may safely challenge physiology and physiological psychology even to *state* the automatic theory fully in terms which do not involve a contradiction.

Arbroath, N. B. ALEXANDER MAIN.

XI.—NEW BOOKS.*

The Logic of Chance: An Essay on the Foundations and Province of the Theory of Probability, with especial reference to its Logical Bearings and its Application to Moral and Social Science. By JOHN VENN, M.A. Second Edition, re-written and greatly enlarged. London: Macmillan & Co. 1876. Pp. 488.

This is a second edition, as incorporating the greater portion of the work published under the same title by the author ten years ago, but the old matter is presented in a form greatly changed and is supplemented by much that is altogether new. Prominent among the additions are chapters on the nature and physical origin of Laws of Error, on Material and Conceptualist Logic (ground partially covered by the author in No. I. of MIND), on the conception and treatment of Modality by logicians, on the logical aspects of the Method of Least Squares, and on the principles involved in the practices of Insurance and Gambling. The work in its new shape has more than ever the distinctive character of a formal treatise on the principles of Probability from the point of view in Logic which is associated with the name of J. S. Mill, and as such contrasts with Mr. Jevons's treatment of the same subject in his *Principles of Science*. In continuing his review of Mr. Jevons's important work, begun in the last number of MIND, the present writer will hope to bring into clear relief and to estimate the opposite conceptions of Probability and Induction put forward in the two books. It should be added that, now as before, Mr. Venn, while in general agreement with Mill, takes ground for himself on several critical questions of Inductive Logic and makes important additions to the fundamental theory.

Logic. By W. STANLEY JEVONS, M.A., LL.D., F.R.S., Professor of Political Economy in University College, London. With Illustrations. Macmillan & Co. 1876. Pp. 128.

This little work is issued in the series of Science Primers edited by Profs. Huxley, Roscoe and Balfour Stewart. It touches most of the ground covered by the author's *Elementary Lessons in Logic*, but it is no mere abridgment of the larger manual, being independently conceived and even including additional topics of importance, —for example, an instructive last section on fallacies in inductive reasoning. The design, apparently, is to present the central doctrines of logical science in plain language with as few technical

* Under this head, it is intended, *as a rule*, to give information only without criticism.

terms as possible, and at the same time to give a general notion of the methods alike of scientific inquiry and common everyday inference. In the first part of the work, the author keeps in the main to the lines of the traditional logic. One may regret here and there the omission of particular doctrines like that of Opposition which seem to admit of plain and instructive statement, but the author shows such judgment in his exposition that he may be trusted not to have excluded anything without good reasons.

The Five Senses of Man. By JULIUS BERNSTEIN, o.ö Professor of Physiology in the University of Halle. With 91 woodcuts. King & Co. London. 1876. Pp. 304.

One of the volumes of the International Scientific Series, published originally in German in 1875. Sight and Hearing are treated at greatest length, each occupying over a hundred pages (Parts II. and III). Smell and Taste are shortly disposed of in Part IV. (30 pp.), and a little more space is given to Touch (including Temperature) in Part I. In a few pages of Introduction the general question of sense-*perception* is grazed. The book will make English readers acquainted with many of the later German experimental researches on the senses and is therefore to be welcomed. It is however an anachronism at the present day to write a book about the *five* senses, even were there no word in it of anything but sensations; much more, when as here, under Touch and Sight, the exposition deals not less with the perceptions referred to those senses. There needs for anything like interpretation of the experimental results set forth not only a careful reference to the general laws of intellect but also an express consideration of the modes of consciousness connected with muscular activity. Stray allusions to mobility of the sense-organs or such mention of the so-called muscular sense as is made at p. 40, profit nothing when they do not mislead. The optical illusions mentioned and figured from p. 150 will be new to most English readers. Those who can read German should pursue the subject as it is treated by Wundt, with full psychological insight, from p. 561 of his *Physiologische Psychologie.*

The Physiology of Mind, being the first Part of a Third Edition, revised, enlarged, and in great part re-written, of *The Physiology and Pathology of Mind.* By HENRY MAUDSLEY, M.D. London: Macmillan & Co. 1876. Pp. 547.

The first edition of the *Physiology and Pathology of Mind* appeared in 1867, followed in 1868 by a second edition which has now for some years been exhausted. The author has not been forward to reprint the book, partly because it seemed no longer so much needed as it was ten years ago for the direction of inquiry into the right channel. Determining at last, however, to send it forth once more, he has sought to work it up to the level of present knowledge. The original scheme is preserved, but so much new matter has had to be incorporated within it that the first half of the work is now issued separately. With addition of new matter there has gone

also omission of various passages, or abatement of tone in others, where the old vehemence of assertion has been rendered superfluous by the advance of opinion. The author wishes the present volume to be "looked upon as a disquisition, by the light of existing knowledge, concerning the nervous structures and functions, which are the probable physical foundations, or the objective aspects, of those natural phenomena which appear in consciousness as feelings and thoughts, and are known only in that way — that is to say, subjectively."

A Treatise on the Diseases of the Nervous System. By WILLIAM A. HAMMOND, M.D., Professor of Diseases of the Mind and Nervous System in the University of the City of New York. With 109 Illustrations. Sixth Edition, re-written, enlarged and improved. New York: Appleton & Co. Pp. 883.

In this very elaborate work, which now appears greatly enlarged, the division made is: I. Diseases of the Brain; II. Diseases of the Spinal Cord; III. Cerebro-spinal Diseases; IV. Diseases of the Peripheral Nervous System; V. Toxic Diseases of the Nervous System. Sections I. and II. are of greatest interest to the psychologist. The treatment of hysteroid affections (Catalepsy, Ecstasy, Hystero-Epilepsy) under Section III. is especially to be noted. Aphasia is treated at great length (pp. 166-205) under Section I., which closes with Insanity (pp. 309-376). The author distinguishes seven modes of Insanity: (1) Perceptional, (2) Intellectual, (3) Emotional, (4) Volitional, (5) Mania, (6) General Paralysis, (7) Idiocy and Dementia. He contends that Insanity is only a "symptom" of brain disease, whence its place in the book; but his classification is, as far as possible, psychologically determined. The definition to which he commits himself is: "A manifestation of disease of the brain, characterised by a general or partial derangement of one or more faculties of the mind, and in which, while consciousness is not abolished, mental freedom is perverted, weakened, or destroyed."

La Psychologie comme Science Naturelle, son Présent et son Avenir. Par J. DELBOEUF. Bruxelles, Muquardt, 1876. Pp. 111.

M. Delboeuf, now professor of philology at the University of Liége, has of late years, by a series of inquiries in different parts of the philosophic field, made a reputation far beyond his native country Belgium. He has now for some time been mainly engaged in psycho-physical investigation of the Senses, and his *Théorie générale de la Sensibilité* mentioned in the last number of MIND, with his earlier *Recherches Théoriques et Expérimentales sur la Mesure des Sensations* (1873), will, it is hoped, on another occasion be critically examined in this journal with the attention they eminently deserve. The present short work, as the title implies, is of a more general character. In the first section he defines the notions of Mind and Body, holding the distinction not to be primitive but developed out of the truly primary distinction of *Ego* and *Non-ego*, and leading up to the conclusion that, as the internal sense

and external senses applied directly to ourselves yield but a fragmentary knowledge, their data for psychology must be supplemented from observation of others and by the recorded experience of mankind in history and the sciences generally. He then, in the second section, determines, within psychology in general, the special aim and method of psycho-physical investigation: Psycho-physics, as a natural science, seeks to arrive at primitive mental facts, following them up into the domain of the Unconscious; its method is experimental and quantitative. In the third section examples are given of the scientific reduction of conscious judgments, showing them to be in the last resort syntheses of anterior judgments that seem primitive because there is no consciousness of anything beyond them; but experiment applied to the phenomena of Sensibility and "Motility" carries us farther, evincing that both rest upon processes of unconscious inference whose premisses are in great part supplied by habit and instinct. There next follow two sections dealing comprehensively with Sensation and with Effort, as constituents of Intelligence; while a concluding section throws out ideas as to the ultimate relation between the physical and psychical. The sections of the little treatise are somewhat loosely connected, but several of them are extremely suggestive. Particularly to be remarked, here as in other of the author's works, is the prominence that he gives to motor activity in the explanation of objective perception.

Uchronie (L'Utopie dans l'Histoire), Esquisse Historique apocryphe du développement de la Civilisation Européene tel qu'il n'a pas été, tel qu'il aurait pu être. Paris, Bureau de *La Critique Philosophique*, 1876. Pp. 413.

This is a bold attempt to construct history—and past history—in accordance with philosophical theory, by M. Charles Renouvier, director of the weekly journal *La Critique Philosophique* and leader of an important movement in French thought, which assumes the title of *Criticist* as being a purified and systematised Kantianism. His design is to combat the fatalism and optimism of certain prevalent theories of history, and with this view, in the guise of a free-thinking monk writing at the beginning of the 17th century before being burned by the Inquisition at Rome, he sketches down to that time a history of European civilisation, which from the age of Marcus Aurelius onwards differs absolutely from the actual course that the history has taken. The notion is that with human nature as it actually was the course of events might possibly have been different from that which really came to pass; at the same time he draws out his apocryphal or hypothetical history so as to prefigure the ideal state of society towards which we of the present day are called to struggle. How the ancient civilisation, instead of going on to decline, recovered its vitality by human effort, and Christianity was thrown back into the East till after long time a day came when it could be re-admitted, on terms of fair equality, into a society ordered on principles of sound philosophy—

is duly told. There are also appendices to the fiction, bearing date 1658 and 1709, and notes from an assumed editor's hand at the present time, which remind or inform the reader what was the actual course of history instead of this "better" one. M. Renouvier puts his own name at the end of the book, where in a few pages he discusses the conditions governing such a hypothetical construction as he has attempted. The book is in every way remarkable.

EDITOR.

The Life of John Locke. By H. R. FOX BOURNE. Two Volumes. London: Henry S. King and Co., 1876. Pp. 488, 574.

For the construction of the present Life the author has explored sources hitherto unregarded—above all the documents of the Shaftesbury family. Two stout volumes are the result, in which some of the main points of philosophical interest are alone noticed here. We have little positive information with regard to Locke's early philosophical studies—Descartes on the one hand, Gassendi and Hobbes on the other, being the chief authors. Political Philosophy seems to have attracted him most at first; "Reflections on the Roman Commonwealth," a treatise of 40 closely written pages, in which Hobbes's Theory of the State is followed, being written while he was a student at Oxford, and somewhat later an "Essay concerning Toleration" (unfinished), printed here in full. The discussion referred to in the "Epistle to the Reader," prefixed to the *Essay concerning Human Understanding*, probably took place in the winter of 1670-71, and between that time and the publication of the *Essay* in 1690 we get occasional notices of the progress of the work. The author is of opinion that there is evidence to show that the composition of Book II. followed directly on that of Book I., c. i., that Book IV. was begun before the completion of Book II. or any part of Book III., and that the discussion on Innate Ideas Book I. was written last. Locke was repeatedly urged to follow up his essay by a treatise on Morals, but his modesty and the lofty conception he had framed of the task prevented anything systematic ever being accomplished by him in that field. The cause of Locke's controversial writings was the publication of the *Reasonableness of Christianity*. The argument with Stillingfleet attracted the notice of Leibniz, of whose connection with Locke we hear, however, nothing more than that "Leibniz began in Locke's life-time to criticise his philosophical doctrines, and some of these strictures were submitted to him by their mutual friend Thomas Burnet."

A Philosophical Treatise on the Nature and Constitution of Man. By GEORGE HARRIS, LL.D., F.S.A., &c. Two Volumes. London: George Bell and Sons, 1876. Pp. 410, 566.

The author informs us that the present Treatise is the result of the labour of a long life-time. It consists of a preliminary dissertation on the nature of animated beings and the dual constitution of man in particular; of a book on the psychology of Feeling, or, in

the author's language, the Medial Nature and Constitution of Man; another on the Moral Nature and Constitution; and a third on the Mental Nature and Constitution or Intellectual Faculties. Throughout the work reference is made in foot-notes to the opinions of men of every creed and profession. The author derives his evidence indifferently from Science and the Scriptures. His metaphysical position is a dogmatic Spiritualism. "The soul it is which is at all events the only and the whole intelligent and immortal part of us. What are considered the faculties of the mind are the active powers of the soul; and the sensations, emotions and passions constitute its passive capacities of being acted upon."

Philosophy and its Foundations. London: Simpkin, Marshall and Co., 1876. Pp. 94.

The tractate consists of two chapters:—1. Idealism and Sensationalism. 2. Psychology, Moral and Spiritual. The author contends for a solution of philosophical problems on "the principles of Lord Bacon and Mr. Locke." Transcendentalism in all its phases is utterly untenable. "We believe in the *dictum* of Mr. Locke, that Intellect, primarily and fundamentally, may be compared to a sheet of clean paper." With respect to the forms of intuition, Time is the negation or vacuity betwixt events; Space, negation or vacuity betwixt limitation in form. The causal bond is to be found neither in the mind nor out of it, but in a perception of similar relations. Otherwise expressed—the principle of Contradiction rules the logic of facts as of conceptions. Will is the prevalent desire. The foundation of Morality is "the intuition of suitability or otherwise, as applicable to the well-being of a sentient creature."

Dictionnaire des Sciences Philosophiques par une société de professeurs et de savants sous la direction de M. Ad. Franck. 2me édition. Paris, 1875.

This second edition appears after the lapse of from twenty to thirty years. In order to understand the point of view of the Dictionary one must remember that the original preface appeared in 1843, at a time when Royer Collard and Jouffroy had just completed their labours, and Cousin was at the height of his fame and authority. In the declaration of principles the reader is informed that "the only legitimate method" is that of "Socrates and Descartes." In psychology "we teach the most positive spiritualism. The soul is in our eye what it is in reality, a free and responsible force, an existence entirely distinct from every other, which possesses itself, knows itself, governs itself, and carries in itself, with the imprint of its origin, the pledge of its immortality." The present editor has attempted to soften the dogmatic rigour of the earlier issue; M. Paul Janet, for instance, having replaced the article on "Duty," "written in a too systematic spirit, by a new article more conformable to the impartiality of the true philosopher." So with other articles. (On turning to the article on "Duty,"

however, one finds little else than an analysis of the ethical theories of Kant.) It would, perhaps, have been well if the revisions had been more extensive. In the article on "Logic," for example, we read that "the illustrious successor of Reid and Stewart will soon (!) publish, under the title of *A New Analytic*, a work which will doubtless effect a change in some of the principal theories hitherto considered established." This new edition is especially strong in Biography. The names of philosophers of note who have died since the first edition are inserted in their places, their works described, and their leading opinions critically examined. The new biographical matter has been chiefly furnished by M. Emile Charles. His careful presentation of the views of Hamilton, Mill, and Schopenhauer may be particularly mentioned. Mill's theory of the External World is discussed at great length. M. Charles follows the argument step by step, and concludes that Mill ought to have ended by becoming a pure subjectivist. "The doctrine reposes on the contrast between sensations of two kinds: admitting the reality of the fact, one does not see the consequence to follow, that of those two classes the one will necessarily be attributed *au moi*, and the other *à l'extérieur*. It might be so if we had already the idea of something different from ourselves, and not only that of difference between two of our states—if, in a word, the contrast implied the distinction between the subject and the object. Without that condition, one does not see why the mind goes beyond itself; one does not see how it can assure itself there are other minds, although Mill declares that their existence is 'susceptible of proof.'" In his view of Hamilton, M. Charles is largely in agreement with Mill, urging many of the objections found in the *Examination*. Hamilton's place in the ranks of philosophy is that of a subtle dialectician. In showing the weaknesses of opponents he was a master. But it is difficult to say what were his positive convictions. With Anselm he might have said, *Credo ut intelligam*, and yet more ruthlessly than Kant he destroyed every basis of certainty. It should be added that memoirs of scientific men of a philosophic cast of mind are included in the present edition—Ampère, Cuvier, Lamarck, &c. An article of considerable length is devoted to the life and labours of Galileo.

Metaphysics; or, The Science of Perception. By JOHN MILLER. New York: Dodd and Mead. Pp. 402.

"The Science of Perception" is regarded under five aspects:—1. *As such* (Psychology); 2. *As knowledge* (Logic); 3. *As the knowledge of Being* (Ontology); 4. *As emotion* (Pathics); 5. *As knowledge of the Being of a God* (Theology). A conscious current is the ultimate human reality; and the object of the treatise is to show that Perception is its only phenomenon. Perception is either Consciousness, or Emotion, or Cognition. Of Perception there are six fundamental and inexplicable laws:—It (1) is incessant; (2) follows the strongest emotion; (3) is fading; (4) affects the body in its nervous, muscular and sanguineous systems; (5) is con-

tinuous; (6) is recurring. There are no "simple ideas." There is more than we are conscious of. Order, analogy, difference drive us beyond thought—drive us to the inference of permanence, faith in a something of which we are not conscious. The final cause of all is to be sought in Ethics.

Eléments de Philosophie populaire, par O. MERTEN. Namur, 1876. Pp. 144.

The intention of the author in issuing this little work is to put in the hands of the masses an easily-comprehended account of the laws and functions of human intelligence. The point of view is approximately that of the Scoto-French spiritual eclecticism of the earlier part of this century. Substantial Soul, Freedom of Will, Personal Immortality are rational beliefs. A popular treatise on moral philosophy will probably follow.

Zur Analysis der Wirklichkeit. Philosophische Untersuchungen von OTTO LIEBMANN. Strassburg, 1876. Pp. 619.

In general conformity with the earliest division of Philosophy into Dialectic, Physics and Ethics, the author discusses the problems of Thought and Being in three sections entitled respectively, "Critique of Knowledge and Transcendental Philosophy"—"Natural Philosophy and Psychology"—"Æsthetics and Ethics." This order is the proper one, inasmuch as consideration of the conditions of human knowledge must precede any attempt to estimate the content of knowledge, external or internal; after which the mind may pass to a judgment of value, and the arrangement of a scale of worth, of its objects. The point of view is Kantian. As the philosophical problem was imperfectly conceived before Kant, and as since Kant, on the one hand, Idealism has been pushed to an extreme by Fichte, Schelling, Hegel, and, on the other hand, Realism has been illusively set up by Herbart, a return must be made upon Kant as the exponent of an ever legitimate and necessary Criticism. The author commences by a short and sharp examination of Berkeley. Berkeley's fundamental error lay in concluding from the verbal proposition "The only mode of existence known to us is *Percipi*" to the real proposition "*Percipi* is the only possible mode of existence;" to which may be added that, allowing the illogical inference to pass, the outcome of Berkleianism should have been Solipsism. The ground cleared of a false idealism, the author is ready to lay down the lines of a genuine idealism by endeavouring, in the spirit of Kant, to separate matter and form of consciousness. The phenomenal character of Space is the first result of criticism. The circumstance that the mathematician is able to conceive, though not to intuite, a space of more than three dimensions, shows that our space (the space of the Euclidian geometry) is only a form of human intuition, the wrapping of our material experience which beings of another order might not possess. Whether the order of the absolutely-real beyond our consciousness agrees with our space-intuition we are wholly unable to say. The relativity of Time is next illustrated, after

which the antinomy of Motion is examined. The validity of the first law of motion only holds on the assumption of absolute space, an assumption which physicists are apt to forget. But only a solitary body can move rectilineally for ever, *ergo* absolute motion is postulated too. That Physics is constrained to assume Absolute Space, Time and Motion proves their transcendental legitimacy for supporting the empirical content of consciousness, but affords no warrant for concluding to congruent or commensurable counterparts in the realm of Reality. The category of Cause has its difficulty only for the uncritical thinker. Here again we can conceive an intelligence not bound by the conditions of human existence. We have only to remove the framework of Time, and every inference implying causal connection (as that say of a falling body) will be assimilated to a syllogism, where a special instance is subsumed under a general law, and the inference drawn by an indivisible act of intelligence. Lastly, how stands it with the notion of the *à priori* in general? Strip human consciousness as completely as one may, there remain the laws of thought itself which make all special thinking possible. *Tabula rasa* and *ideae innatae* are untenable extremes. Scepticism is suicidal, for what does Hume's "Custom" come to but the recognition of a psychical cause of a necessary effect, viz. the illusory belief in an objective "tie" between antecedent and consequent. Materialism and Spiritualism assume entities of which consciousness knows nothing—there are only left the mental laws through which such entities are constructed. Without rational conditions no empirical world possible! The *à priori* then is *meta-cosmic;* to make it cosmic would be to leave our world, material and intellectual, without a base. The procedure of Kant in Metaphysics was identical with that of Newton in Physics—he concluded from the conditioned to the conditioning, and found the latter not in the temporal sphere (for time itself is only a form) but in the eternal "transcendental," whose standing marks are *universality* and *necessity*. The logical *à priori* must not be confounded with the psychological *à priori*. Anything may be conceded to Darwin and Spencer on the latter point without touching the metacosmic grounds of experience of all orders.

The second Section is occupied with such themes as "The philosophical value of Mathematical Physics," "Atom," "Platonism and Darwinism," "Cosmogony," "Instinct," "Man and Animal," "Brain and Mind." Under the guidance of the principles laid down in the Critique of Knowledge the author reviews the leading problems of the empirically-real, drawing in each case the line between the truth for us and the truth rationally (λόγῳ). Nature, what is it? "Unity in multiplicity, all-prevailing regularity in the confused wealth of particulars, *ordo ordinans*, objective World-logic. It is that ever silent, active Reason which has determined the majors of the Happening, which supplies the minors *in concreto*, and out of the present world-condition draws as conclusion the next, and then the next therefrom, and so *in infinitum et in aeternum.*" But (Section third) the universe of consciousness is not exhausted by Physics and Metaphysics; after the fullest consideration imaginable of what

is, remains the further problem of the *ought to be*. To the innumerable antinomies of the Universe must therefore be added this final one of Actuality and Possibility, both following their own laws and clashing at every turn. Our ideals properly belong to the subjective sphere, but we instinctively project them into the outer world, and strive to shape the outer world into conformity with them. It is as futile to dispute the existence of norms of Beauty and Goodness because tastes and consciences vary as to disown a stable universe because Science is progressive. As no people is to be found without an idea of truth, so none is without a feeling of beauty and moral distinctions. The method of Ethics as of Philosophy as a whole is analytical; taking the moral perceptions and judgments as data we examine their conditions. It will be found that there is a **Δαιμόνιον** in all men which no empirical theory can explain.

W. C. Coupland.

NEWS.

In a communication recently made (19th April) to the Vienna Academy of Sciences (Philosophico-Historical Class), Professor Th. Gomperz presents in a new light Epicurus's doctrine of Will. Comparing certain fragments of the 2nd and another book of Epicurus's main work **Περι Φύσεως**, to be found in Vol. VI. of the Second Collection of *Herculanensia Volumina*, with fragments that were printed in the earlier Collection, he is able to establish the following series of "irrefragable conclusions":—"Epicurus was not, as hitherto supposed, an indeterminist; he was an opponent of fatalism, not of determinism; he did not believe in the causelessness of human volitions; he held (with Voltaire and others) as morally free the man whose acts were determined by his convictions: in expounding the process of volition he avoided, like the best thinkers of our own time (Mill, Comte, Grote and Bain), the use of the word *necessity* as misleading and confusing; like these thinkers he objected to describing by one and the same word the action of *uncontrollable* causes and the action of causes in general. Finally, his theory of Will took a special colouring from its connection with the theory of knowledge peculiar to him and Democritus. It is evident that the problem of Will assumed for him the definite form of the question—How can a volition be excited by an impression (**εἴδωλον**) from without, the condition of all perception and representation, and at the same time be determined by the sum total of our convictions, *i.e.*, our collective personality?" Professor Gomperz proposes to give, on another occasion, a full exposition of Epicurus's theory of Will. To clear up various parts of the printed fragments he must, however, first repair to Naples and consult the original papyrus-rolls. It is worthy of remark that Grote, who is signalised as above in the official summary of Professor Gomperz's communication, himself divined that Epicurus, in his opposition to fatalism, was no indeterminist; see his short essay on Epicurus printed in the Appendix to *Aristotle*, Vol. II., p. 441.

The English Committee for the Spinoza Memorial has issued the following circular:—

The desire to see a Statue of Spinoza at the Hague, which has before now been expressed on the spot, and has met with wide assent, must recur to many minds as the February of 1877, the bicentenary of his death, is drawing near.

Germany has for many years contemplated the statue of Kant at Königsberg, and it is not fitting that Holland should be any longer without that of Spinoza, who was born and bred, who lived and died upon her soil. She has already honoured her painting in Rembrandt, her poetry in Vondel, her love of liberty in William of Orange, her naval glory in De Ruyter, her learning in Erasmus, her medical science in Boerhaave, and she now seeks to add to their memorials that of a philosopher whose writings, too long and too often misunderstood, have at length been recognised by many students in many lands as among the enduring masterpieces of the human mind.

It is proposed accordingly to erect a statue of Spinoza at the Hague, if possible in sight of the spot where he spent the last ten or twelve years of his short life and wrote the works that were to be his legacy to mankind. A number of men of letters and science in Holland have formed a committee for this purpose, and as the name of Spinoza belongs not only to Holland but to the civilised world, they hope that men of all countries may be found willing to help in doing honour to his memory. Moreover, they do not address themselves exclusively to students of philosophy who can appreciate Spinoza's subtle and far-reaching thought, but also to the much larger number who can recognise and admire the singular purity and disinterestedness of his life, and his unflinching devotion to the pursuit of truth.

The following names of supporters are added to those mentioned in our last number:—Lord Arthur Russell, M.P.; M. E. Grant Duff, Esq., M.P.; Sir Louis Mallet, C.B.; Hon. Mr. Justice Grove; The Hon. Roden Noel; Matthew Arnold, Esq.; J. A. Froude, Esq.; Shadworth H. Hodgson, Esq.; James Sully, Esq.; Prof. G. Croom Robertson; Rev. Prof. Marks; Rev. James Martineau; T. H. Farrer, Esq.; Sir B. C. Brodie, Bart.; Prof. Bryce; Rev. J. P. Mahaffy. Subscriptions may be sent to F. Pollock, 5, New Square, Lincoln's Inn, London, Hon. Sec. and Treasurer to the English Committee; or direct to the Treasurer of the Central Committee, Mr. A. Wm. Jacobson, 39, Raamstraat, The Hague.

The newly-founded "Education Society," mentioned in MIND, No. II., has now issued an elaborate Programme, in which it is sought to map out the proposed area of investigation, so as to enable branches of the society and individual workers to proceed on a common plan. From the communications received a selection will be made by the Committee for the Published Proceedings. Professor J. M. D. Meiklejohn is Chairman of Committee for the year. The Honorary Secretaries are Mr. C. H. Lake (Withernden, Caterham, Surrey), and Mr. E. Blair (11, Orme Square, W.).

Mr. Robert Adamson, M.A., of Edinburgh, has been appointed Professor of Logic, Moral Philosophy, and Political Economy, in the Owens College, Manchester.